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August 29, 2003

**VIA ELECTRONIC FILING**

Marlene Dortch, Secretary,  
Federal Communications Commission  
445 12th Street SW  
Room TWB-204  
Washington, DC 20554

Re: Ex Parte Notification: WC Docket 03-167, Application By SBC Communications Inc. For Authorization Under Section 271 of The Communications Act to Provide In-Region, Inter LATA Service in the States of Illinois, Ohio, Indiana and Wisconsin

Dear Ms. Dortch:

Yesterday, the undersigned and Edward Cadieux of NuVox Communications, Inc. ("NuVox") (who participated telephonically) met with members of the Wireline Competition Bureau, including Pam Arluk, Douglas Galbi, Deena Shetler, Jennifer McKee and Irshad Abdal-Haqq regarding the application of SBC for Section 271 authority in the states of Illinois, Indiana, Ohio and Wisconsin. NuVox discussed the failure of SBC to meet Checklist Item 1 of the Section 271 Checklist in Indiana and Ohio.

Specifically, NuVox discussed how SBC has unilaterally imposed unreasonable and anticompetitive conditions upon NuVox's use of its collocation facilities, and has employed anticompetitive and unreasonable collocation provisioning and billing practices in violation of the terms and conditions and procedures set forth in the interconnection agreement between the parties. The attached materials were provided to staff. In accordance with the Commission's

Marlene Dortch  
August 29, 2003  
Page Two

rules one electronic copy of this notice and the attached materials are being provided for inclusion in the above referenced dockets.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Ross A. Buntrock". The signature is fluid and cursive, with the first name "Ross" being the most prominent.

Ross A. Buntrock

cc: Pamela Arluk  
Douglas Galbi  
Deena Shetler  
Jennifer McKee  
Irshad Abdal-Haqq

**Application of SBC Communications Inc. for  
Section 271 for Authority to Provide In-region  
InterLATA Service In Illinois, Ohio,  
Indiana and Wisconsin**

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WC Docket 03-167

August 28, 2003

**NuVox Communications, Inc.**

# Overview

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- **Background on NuVox**
- **SBC Fails to Meet Checklist Item 1 in Indiana and Ohio**
  - SBC imposes unreasonable and discriminatory conditions upon collocation
  - SBC's collocation power billing practices are unreasonable and violate the interconnection agreement with NuVox.
  - The Commission should deny this application.

# Background on NuVox

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- NuVox is a facilities based CLEC
  - Provides bundles of voice, data, broadband internet access, long distance.
  - NuVox serves SMBs in 30 markets across 13 states including Ohio and Indiana.
  - NuVox has 200 collocations systems wide.
  - 97 collocations in SBC territory.
  - 45 collocations in Indiana and Ohio.

# **SBC Imposes Unreasonable Conditions Upon NuVox's Ability to Collocate**

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- At the time NuVox sought to deploy collocation in Indiana and Ohio (2000) SBC prevented NuVox from using a distributed power arrangement.
- Distributed power allows deployment of 100 amps of redundant power over single pair of feeds.

# **SBC Imposes Unreasonable Conditions Upon NuVox's Ability to Collocate**

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- SBC's refusal to allow NuVox to deploy distributed power arrangement forces NuVox to deploy arrangements resulting in SBC overbilling NuVox for power.
  - SBC bills NuVox MRC for consumption of 600 amps of fused and non fused power per month at a cost of approximately \$3600/month/collocation.
  - In Indiana and Ohio totals approximately \$540,000/month.
  - NuVox's actual peak usage of power ranges from 5-15 amps

# **SBC's Collocation Billing Practices Are Unreasonable**

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- Since April 2001 NuVox has disputed power charges exceeding 100 amps.
  - Currently litigating cases against SBC in Indiana and Ohio on power issues.
- Besides forcing CLECs to pay for power that they never use, SBC imposes unreasonable NRCs for "Power Delivery"
  - In Ameritech Region in 2000 CLECs were assessed Power Delivery MRC of \$1853.97 in Ohio; \$1804.42 in IN.
  - NRCs assessed on "per lead" basis.
  - Total NRCs of \$35-45,000 per collocation for Power Delivery.
- Allowing SBC to continue to overcharge for power is especially egregious in light of the excessive NRCs they have already collected.



## **SBC's Collocation Billing Practices Prevent SBC From Satisfying Checklist Item One**

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- ❑ SBC fails to provide interconnection on rates, terms and conditions that are just and reasonable and in accord with the ICA.
- ❑ SBC's practice of billing power consumption MRC on 100% of fuse A and B feeds and for all dual pairs violates SBC's own engineering standards
- ❑ SBC's collocation cost studies contradict SBC's explanation of justification for double recovering today.



## Conclusion:

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- ❑ The record reflects that SBC has imposed its discriminatory collocation provisioning and billing practices across the former Ameritech region.
- ❑ The Commission should deny the application for Indiana and Ohio.

**STATE OF INDIANA**

**INDIANA UTILITY REGULATORY COMMISSION**

**Complaint of NuVox Communications of  
Indiana, Inc., Against SBC Indiana  
Regarding its Unlawful Billing Practices for  
Collocation Power Charges,** Cause No. 42398

**Respondent: SBC Indiana.**

**Respondent: SBC Indiana.**

**Cause No. 42398**

**PRE-FILED TESTIMONY**

**OF**

**KEITH COKER  
ON BEHALF OF**

**NUVOX COMMUNICATIONS OF INDIANA, INC.**

August 19, 2003



1 I joined one of NuVox's predecessor companies, TriVergent Communications, in 1999,  
2 and was responsible for the overall design of TriVergent's voice and data networks.

3 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

4 A. The purpose of my testimony is to provide an overview of NuVox's Indiana collocations,  
5 including an explanation of the power supply arrangements connecting SBC's central  
6 office power systems to NuVox's equipment in those collocations. I will also describe  
7 how SBC bills NuVox for collocation power and how that billing compares with the level  
8 of power demand NuVox's collocated equipment actually places on SBC's power  
9 systems.

10 **BACKGROUND**

11 **Q. PLEASE EXPLAIN WHAT A COLLOCATION IS.**

12 A. A collocation is an arrangement whereby a CLEC is permitted to lease space in an  
13 incumbent LEC's ("ILEC") central office to deploy telecommunications-related  
14 equipment. Collocation allows a CLEC to establish a "point of presence" in the ILEC's  
15 central office in order to facilitate access to UNEs and/or to obtain interconnection with  
16 the ILEC. ILECs are required to make collocation available to CLECs pursuant to the  
17 Telecommunications Act and pursuant to rules and decisions of the FCC and state  
18 regulatory commissions.

19 **Q. HOW DOES NUVOX UTILIZE COLLOCATIONS TO PROVIDE SERVICES TO**  
20 **ITS CUSTOMERS?**

21 A. NuVox uses collocations primarily to obtain access to unbundled network elements.  
22 Some of NuVox's collocations also facilitate interconnection with SBC.

23 **Q. HOW MANY COLLOCATIONS DOES NUVOX HAVE IN OPERATION?**

1 A. NuVox has nearly 200 collocations in operation across its 13 state region. Approximately  
2 half of these collocations are in SBC central offices, and 12 of those collocations are  
3 located in Indiana.

4 **Q. HOW LONG HAVE NUVOX'S INDIANA COLLOCATIONS BEEN**  
5 **OPERATIONAL?**

6 A. The Indiana collocations have been operational since the second half of 2000 – i.e., for  
7 nearly three years.

8 **Q. HOW DOES NUVOX USE COLLOCATIONS TO OBTAIN ACCESS TO UNES?**

9 A. NuVox leases UNE loops (almost exclusively DS1 UNE loops) from SBC. These loops  
10 connect small and medium-sized business customers to our collocations in SBC central  
11 offices. NuVox combines these loops to NuVox multiplexing and transmission  
12 equipment housed within the collocation spaces, which in turn connect to transport  
13 facilities that link the collocations to NuVox's digital voice and ATM data switches.

14 **Q. WHAT TYPES OF NUVOX SERVICES DO THE COLLOCATIONS SUPPORT?**

15 A. The collocations are essential to NuVox's offering of facilities-based voice (both local  
16 exchange and long distance) services, broadband internet access service and related,  
17 ancillary services.

18 **Q. WHAT TYPES OF EQUIPMENT HAS NUVOX DEPLOYED IN ITS INDIANA**  
19 **COLLOCATIONS?**

20 A. The equipment deployed in NuVox's collocations includes muxes, channel banks, digital  
21 cross connects, data aggregators, routers, digital subscriber line access multiplexers  
22 ("DSLAMs"), and related surveillance and testing equipment. The equipment supports

1 the use of UNEs and the voice, data, and integrated voice/data services that NuVox offers  
2 to its customers via those facilities.

3 **NUVOX'S COLLOCATION POWER ARRANGEMENTS**

4 **Q. PLEASE DESCRIBE THE POWER SUPPLY ARRANGEMENT THAT WAS**  
5 **ESTABLISHED IN NUVOX'S COLLOCATIONS AT THE TIME THEY WERE**  
6 **CONSTRUCTED IN 2000.**

7 A. The power distribution configuration that was deployed involved dual feeds (i.e.,  
8 matched pairs of power distribution cables, with the individual feeds referred to as the  
9 "A" feed and the "B" feed) connecting directly from SBC's central office power  
10 distribution system to each bay of equipment in NuVox's collocations. Each of the  
11 collocations has several equipment bays with connecting feeds fused at 30 amps  
12 redundant power (i.e., a 30 amp A feed and a corresponding 30 amp B feed), plus one  
13 equipment bay in each collocation with connecting feeds fused at 50 amps redundant  
14 power (i.e., a 50 amp A feed and a corresponding 50 amp B feed). The total amount of  
15 fused power per collocation varies depending on how many equipment bays are active at  
16 each site, with 140 amps redundant (140 amps A/140 amps B) fused power at nine of the  
17 locations, and 170 amps redundant (170 amps A/170 amps B) fused power at the other  
18 three locations.

19 **Q. YOU HAVE CHARACTERIZED THESE POWER FEEDS AS "FUSED."**  
20 **PLEASE EXPLAIN.**

21 A. A fuse is a protective device that is designed to prevent a power overload on a feed. Each  
22 feed is fused at a level that is consistent with the power-carrying capabilities of the cable.  
23 If, for example, collocated equipment attempted to draw a 40 amp load on a power feed

1 fused at 30 amps, the fuse would blow and the power flow over that feed would be  
2 interrupted.

3 **Q. BEYOND THESE FUSED POWER FEEDS, ARE THERE ADDITIONAL**  
4 **POWER FEEDS RUNNING BETWEEN THE SBC CENTRAL OFFICE POWER**  
5 **SYSTEMS AND NUVOX'S INDIANA COLLOCATIONS?**

6 A. Yes. In addition to the fused feeds, each collocation has additional, non-fused feeds that  
7 run in cable racks within the central offices from SBC's power system to NuVox's  
8 collocation spaces. These non-fused feeds are not connected to any equipment in  
9 NuVox's collocation spaces – they enter NuVox's collocation spaces but do not terminate  
10 to equipment.

11 **Q. ARE THESE FEEDS CAPABLE OF SUPPLYING POWER TO NUVOX'S**  
12 **EQUIPMENT?**

13 A. No. Until and unless they are fused, they are not capable of supplying power.

14 **Q. IF FUSES WERE INSERTED INTO THESE FEEDS, WHAT IS THE POWER**  
15 **CAPACITY THAT THEY COULD PROVIDE?**

16 A. In nine of the collocations, the capacity of these feeds – if they were to be fused – would  
17 be an additional 160 amps of redundant power – i.e., in addition to the 140 amps of  
18 fused power I mentioned previously. In three of the collocations, the amount of  
19 additional capacity that would be associated with these feeds if they were to be fused  
20 would be 130 amps of redundant power. This is in addition to the 170 amps of redundant  
21 fused power feeds that are connected to NuVox equipment in those three collocations.

22 **Q. IS IT WITHIN NUVOX'S CONTROL TO FUSE THESE POWER FEEDS ON ITS**  
23 **OWN AND MAKE THEM OPERATIONAL?**



1 A. No. Fusing occurs on the SBC side of the collocation. Only SBC can fuse the feeds.

2 **Q. HAS NUVOX EVER REQUESTED SBC TO FUSE THESE POWER FEEDS?**

3 A. No, it has not.

4 **Q. HAS ANY AMOUNT OF POWER EVER BEEN SUPPLIED BY SBC TO NUVOX**  
5 **OVER THESE NON-FUSED FEEDS?**

6 A. No. These non-fused feeds have never supplied any power to NuVox and, as I indicated,  
7 they are incapable of supplying any power without SBC inserting fuses into them.

8 **Q. WHY DID NUVOX ASK SBC TO DEPLOY THESE NON-FUSED POWER**  
9 **FEEDS?**

10 A. The non-fused power feeds were requested by NuVox in anticipation of future growth.  
11 However, with the severe downturn in the telecommunications sector beginning in 2001,  
12 this anticipated growth did not materialize. As a result, NuVox has never directed SBC  
13 to insert fuses and activate these non-fused feeds.

14 **Q. REGARDING THE FUSED POWER FEEDS, YOU HAVE DESCRIBED A**  
15 **POWER SUPPLY ARRANGEMENT WHERE THE DUAL FEEDS CONNECT**  
16 **DIRECTLY FROM THE SBC POWER DISTRIBUTION SYSTEMS TO**  
17 **EQUIPMENT BAYS WITHIN NUVOX'S COLLOCATIONS. IS THAT THE**  
18 **TYPE OF POWER ARRANGEMENT THAT NUVOX WANTED WHEN IT WAS**  
19 **APPLYING FOR ITS COLLOCATIONS IN INDIANA?**

20 A. No. NuVox preferred a "distributed power arrangement" involving 100 amps of  
21 redundant power, involving a single pair of 100 amp feeds that would connect to a  
22 NuVox-owned power distribution panel within the collocation space. In that  
23 configuration, NuVox would have performed the distribution of the 100 amps of

1 redundant power from the power distribution panel to the various equipment bays in the  
2 collocations via NuVox's own intra-collocation power cabling.

3 **Q. AT THE TIME NUVOX WAS APPLYING FOR ITS INDIANA**  
4 **COLLOCATIONS, DID AMERITECH PERMIT CLECS TO INSTALL THIS**  
5 **TYPE OF DISTRIBUTED POWER ARRANGEMENT?**

6 A. At that time, Ameritech would only consider such a request via a "non-standard  
7 application."

8 **Q. WHAT IS A NON-STANDARD APPLICATION?**

9 A. Under Ameritech's procedures that existed at the time (i.e., in early 2000), a non-standard  
10 application was an individual case basis ("ICB") process.

11 **Q. HOW DID AMERITECH'S NON-STANDARD APPLICATION PROCESS**  
12 **DIFFER FROM THE STANDARD APPLICATION PROCESS?**

13 A. The non-standard application process lacked the definitiveness of the standard application  
14 process.

15 **Q. PLEASE EXPLAIN.**

16 A. The standard application provided a defined process for requesting and constructing a  
17 collocation. It set timelines in terms of the lag time between NuVox's submission of a  
18 collocation application and Ameritech's response (containing the estimated costs of  
19 construction and recurring charges). Under the standard application process, NuVox had  
20 a set amount of time to either accept or reject Ameritech's response and, if accepted,  
21 Ameritech then had a specified maximum amount of time to complete construction of the  
22 collocation space and make it available to NuVox. So long as NuVox's proposed  
23 collocation configuration was consistent with the parameters of what Ameritech then

1 considered to be a “standard” collocation configuration, NuVox could have confidence  
2 that its collocation application would not be rejected, and that the collocation would be  
3 constructed within a finite and knowable timeframe and at an identifiable price. In  
4 contrast, the non-standard application process subjected the collocation request to a  
5 review that would have been exempt from these defined timeframes and which would  
6 have provided no guarantee that the requested configuration would even have been  
7 allowed at all.

8 **Q. AT THE TIME NUVOX WAS CONSTRUCTING ITS COLLOCATIONS, WAS**  
9 **PROCEEDING VIA A NON-STANDARD APPLICATION PROCESS A VIABLE**  
10 **ALTERNATIVE?**

11 A. No. At the time NuVox began applying for collocations in Indiana in early 2000, time  
12 was of the essence for facility-based CLECs to deploy their facilities and to enter the  
13 market. The uncertainties of the non-standard application process made it impractical in  
14 that context. As a result, NuVox submitted collocation applications that requested power  
15 in the only manner that Ameritech then permitted via the standard application process –  
16 i.e., using power feeds that terminate directly into each equipment bay.

17 **Q. AT THE TIME THAT IT WAS SUBMITTING ITS INDIANA COLLOCATION**  
18 **APPLICATIONS, WAS NUVOX REQUESTING THE “DISTRIBUTED POWER**  
19 **ARRANGEMENT” FOR COLLOCATIONS IN OTHER STATES?**

20 A. Yes. At about the same time, NuVox was requesting the distributed power arrangement  
21 for approximately 50 collocations in Southwestern Bell Telephone Company (“SWBT”)  
22 central offices in the States of Arkansas, Kansas, Missouri and Oklahoma.

1    **Q.    DID SWBT PROCESS THOSE APPLICATIONS UNDER ITS STANDARD**  
2       **APPLICATION PROCESS?**

3    A.    Yes, it did.

4    **Q.    WERE NUVOX'S SWBT-REGION COLLOCATIONS CONSTRUCTED WITH**  
5       **THIS 100 AMP REDUNDANT/DISTRIBUTED POWER ARRANGEMENT?**

6    A.    Yes, they were.

7    **Q.    SUBSEQUENT TO NUVOX SUBMITTING ITS APPLICATIONS AND**  
8       **CONSTRUCTING ITS COLLOCATIONS IN INDIANA, DID AMERITECH**  
9       **CHANGE ITS PRACTICE REGARDING DISTRIBUTED POWER**  
10      **ARRANGEMENTS?**

11   A.    Yes. In the Fall of 2000 Ameritech changed its process to permit distributed power  
12       arrangements via a standard application process.

13   **Q.    AT THAT POINT, WAS IT PRACTICAL FOR NUVOX TO REARRANGE THE**  
14       **POWER DELIVERY CONFIGURATION IN ITS INDIANA COLLOCATIONS?**

15   A.    No. The collocations had just become operational and NuVox was just beginning to  
16       serve customers in Indiana. It would have been highly disruptive at that point to  
17       commence a power reconfiguration project across all of the Indiana collocations.

18   **Q.    DOES RECONFIGURING THE POWER FEEDS TO A DISTRIBUTED POWER**  
19       **ARRANGEMENT ENTAIL ADDITIONAL COST TO NUVOX?**

20   A.    Yes. Once a collocation has been constructed with direct-to-equipment bay power feeds,  
21       reconfiguring to a distributed power arrangement requires deployment of new pairs of  
22       power feeds (i.e., connecting from the SBC central office power distribution system into  
23       the NuVox-owned power distribution panel in each collocation), and there are non-

1 recurring costs associated with the installation of those new power feed pairs.

2 Additionally, Ameritech has consistently taken the position that NuVox must “mine-out”  
3 all of the cable associated with the direct-to-equipment-bay feeds that would be  
4 deactivated in the reconfiguration. The mining-out of the cable adds substantial cost to  
5 any reconfiguration project.

6 **Q. PLEASE EXPLAIN WHAT YOU MEAN BY “MINING-OUT” THE POWER**  
7 **CABLE.**

8 A. “Mining-out” the cable refers to the physical removal of the old power feeds – once they  
9 have been deactivated -- from the overhead cable racks running from SBC’s Battery  
10 Distribution Fuse Board to the NuVox collocation space within the central office.

11 **Q. MORE RECENTLY, HAS NUVOX INITIATED A POWER**  
12 **RECONFIGURATION PROJECT WITH ITS INDIANA COLLOCATIONS TO**  
13 **SWITCH TO A DISTRIBUTED POWER ARRANGEMENT?**

14 A. Yes. Several months ago NuVox submitted change applications to SBC to modify its  
15 Indiana (and its Ohio) collocations to a distributed power arrangement, using a matched  
16 pair of 50 amp feeds terminating into a NuVox power distribution panel within NuVox’s  
17 collocation space.

18 **Q. AS PART OF THIS POWER RECONFIGURATION PROJECT, IS NUVOX**  
19 **MINING-OUT THE DIRECTLY-TERMINATING FEEDS THAT ARE BEING**  
20 **DEACTIVATED?**

21 A. Yes. Our understanding continues to be that SBC will only accept and process these type  
22 of change applications if NuVox agreed to mine-out, at its cost, the cables associated with  
23 the to-be-deactivated feeds.

1 **Q. WHY DID NUVOX GO FORWARD WITH RECONFIGURING THE**  
2 **COLLOCATION POWER SET-UP AT THIS TIME?**

3 A. NuVox decided to go forward with the reconfiguration because of the very substantial  
4 and increasing financial “overhang” created by the accumulated disputed amounts  
5 attributable to the SBC collocation power billing practices that I describe in this  
6 testimony. At the time this testimony is being submitted, the accumulated amount in  
7 dispute is approaching \$4.5 million across NuVox’s Ohio and Indiana collocations.  
8 Earlier this year it became apparent to NuVox that no negotiated settlement was likely to  
9 be reached with SBC, and that litigation would be required. Given the significant amount  
10 of time we anticipated would be required to litigate this matter, NuVox understood that  
11 the accumulated disputed amount would continue to grow at a rapid rate for an indefinite  
12 period absent a reconfiguration that substantially reduced the fused power and that  
13 removed the non-fused feeds.

14 **Q. WILL THE RECONFIGURATION TO A DISTRIBUTED POWER**  
15 **ARRANGEMENT COMPLETELY CAP THE DISPUTED AMOUNTS?**

16 A. NuVox does not expect that it will.

17 **Q. WHY IS THAT?**

18 A. If SBC continues with its current collocation power billing practices, it presumably will  
19 bill NuVox the Power Consumption monthly recurring charge (“MRC”) to 100 amps  
20 under the reconfigured power distribution arrangement – i.e., to 100% of the 50 amps of  
21 the A feed plus 100% of the 50 amps of the B feed. However, since the reconfigured  
22 power arrangement will actually consist of 50 amps of redundant power, NuVox’s  
23 position is that the Power Consumption MRC should apply to 50 amps, not to 100 amps.

1 Nevertheless, by reducing the fused power and removing the non-fused feeds the rate of  
2 growth of the accumulated disputed amount will be slowed.

3 **Q. AT THE TIME THAT NUVOX WAS CONSTRUCTING ITS INDIANA**  
4 **COLLOCATIONS, DID SBC HAVE ANY OTHER POLICIES IN PLACE THAT**  
5 **HAD THE EFFECT OF INFLATING THE AMOUNT OF POWER NUVOX WAS**  
6 **REQUIRED TO ORDER FOR ITS INDIANA COLLOCATIONS?**

7 A. Yes. In addition to the policies I have already described, SBC's predecessor, Ameritech,  
8 required that the power level connecting to NuVox's equipment bays be sized at 150% of  
9 the maximum rated capacity (in amps) of the equipment to be deployed in the particular  
10 bay. That power requirement was higher than the 125% requirement that was applicable  
11 to the SWBT-region collocations that NuVox was applying for at virtually the same time  
12 during the first half of 2000. The effect of Ameritech's 150% requirement was bump-up  
13 NuVox's DSLAM equipment bays (of which there was one in each collocation) over the  
14 30 amp A/B capacity threshold to the next available capacity level, which was 50 amps  
15 A/B.

16 **Q. DID SBC SUBSEQUENTLY REDUCE THE 150% REQUIREMENT IN ITS**  
17 **AMERITECH REGION?**

18 A. Yes. In the Fall of 2000 – after NuVox's Indiana collocations had been constructed and  
19 were going operational – SBC changed the policy in the Ameritech region to reduce the  
20 minimum power level to 125%.

21 **SBC'S BILLING PRACTICES FOR COLLOCATION POWER COMPARED WITH**  
22 **NUVOX'S ACTUAL POWER DEMAND**

1 Q. WHAT IS THE MRC FOR COLLOCATION POWER PER NUVOX'S  
2 INTERCONNECTION AGREEMENT WITH SBC IN INDIANA?

3 A. The charge is expressed as, "Power Consumption – Per DC fuse amp" and is now \$6.09.<sup>1</sup>

4 Q. HAS THAT RATE DECREASED SINCE THE TIME NUVOX'S  
5 COLLOCATIONS BECAME OPERATIONAL IN 2000?

6 A. Yes. The Power Consumption MRC was \$6.88 in NuVox's original Indiana  
7 interconnection agreement and was expressed as, "Power Consumption/per Fuse AMP."<sup>2</sup>

8 Q. HOW HAS SBC APPLIED THAT CHARGE TO THE POWER FEEDS IN  
9 NUVOX'S COLLOCATIONS?

10 A. As I have noted, prior to the power reconfiguration that NuVox is now implementing  
11 there have been 140 amps of fused, redundant power feeds (i.e., 140 amps of A feeds and  
12 140 amps of B feeds) in nine of NuVox's Indiana collocations, with 170 amps of  
13 redundant power in the other three Indiana collocations. Also, in nine of the collocations  
14 there are non-fused power feeds that, if fused, would provide an additional 160 amps of  
15 redundant power (160 amps of A feeds and a matching 160 amps of B feeds). In the

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<sup>1</sup> NuVox-SBC Indiana [second] Interconnection Agreement (adoption of AT&T-SBC interconnection agreement), Pricing Schedule at p.11 of 16. This second Interconnection Agreement -- which has been effective from January 1, 2002 to the present -- also provides, "SBC-AMERITECH shall provide adequate lighting, ventilation, power, heat, air conditioning, and other environmental conditions for [NuVox's] space and equipment..." (Schedule 12.15, section 1.4) and that, "SBC Ameritech shall supply power to [NuVox] at parity with that provided by SBC-Ameritech to itself or to any third person." (Schedule 12.15, section 1.10).

<sup>2</sup> NuVox-Ameritech Indiana [first] Interconnection Agreement (adoption of Ameritech-Frontier Local Services interconnection agreement), Exhibit PS-VII, p. Indiana PS 14. Additionally, the first Interconnection Agreement at Schedule 12.16, section 7, provides, "Ameritech shall provide [NuVox] two options to receive power for its collocation space. When ordering Physical Collocation, [NuVox] shall specify that Ameritech provide Central Office power to [NuVox] either (i) from an Ameritech BDFB to the [NuVox] equipment bays or (ii) in the form of fused power feeds from Ameritech's main power distribution board to [NuVox's] BDFB located in the designated [NuVox] equipment area. The power feeders (cables) shall efficiently and economically support the requested quantity and capacity of [NuVox] equipment. The termination location shall be as mutually agreed upon by the Parties. If [NuVox] chooses to receive power via the fused power feeds, it shall pay Ameritech for all costs, as determined in accordance with the Act, incurred by Ameritech to establish such power."



1 other three Indiana collocations, there are non-fused power feeds that, if fused, would  
2 provide 130 amps of additional power (beyond the 170 amps of fused power). With  
3 respect to the fused feeds, SBC bills the Power Consumption MRC on 100% of the A  
4 feed amps and on 100% of the B feed amps. That means that for nine of the collocations  
5 SBC bills the fused power feeds at a total of 280 amps per collocation/per month.  
6 Regarding the non-fused feeds, SBC bills the Power Consumption MRC on 100% of  
7 what would be the A feed amps and on 100% of what would be the B feed amps (i.e., as  
8 if the feeds were, in fact, fused). Thus, for nine of the collocations SBC bills the Power  
9 Consumption MRC to NuVox on the non-fused feeds at a total of 320 amps per  
10 collocation/per month. In total, SBC has been charging NuVox for 600 amps of power  
11 per month in each of the 12 Indiana collocations. That comes to about \$3600 per  
12 collocation/per month in recurring power charges, or approximately \$43,000 per month  
13 in total for the 12 collocations.

14 **Q. OF THE 600 AMPS PER COLLOCATION/PER MONTH THAT SBC HAS**  
15 **BILLED NUVOX, HOW MUCH OF THAT AMOUNT HAS NUVOX BEEN**  
16 **PAYING AND HOW MUCH HAS NUVOX BEEN DISPUTING EACH MONTH?**

17 A. NuVox has consistently paid for 100 amps each month and disputed the remainder.

18 **Q. WHY DOES NUVOX PAY IN THAT MANNER?**

19 A. NuVox's position is that it should have been permitted to install the 100 amp redundant  
20 (i.e., 100 amp A feed with a matching 100 amp B feed), distributed power arrangement  
21 under a standard application process when it applied for and constructed the collocations  
22 in the first place three years ago. It is also NuVox's position that in applying the Power  
23 Consumption MRC, SBC must recognize that the power it supplies is redundant, and that

1 the maximum demand that NuVox could place on the power delivery systems consistent  
2 with maintaining redundancy would be a total of 100 amps for the 100 amp A feed/100  
3 amp B feed configuration that NuVox preferred.

4 **Q. HAS NUVOX DEPOSITED ANY OF THE DISPUTED AMOUNT INTO**  
5 **AN ESCROW ACCOUNT?**

6 A. Yes. In January, 2002 NuVox deposited a total of \$495,960 into an escrow account. At  
7 this point, with accrued interest, the amount sitting in escrow is approximately \$505,000.

8 **Q. PLEASE EXPLAIN THE BACKGROUND REGARDING THE ESCROWED**  
9 **FUNDS.**

10 A. During the dispute resolution discussions between NuVox and SBC, in December, 2001  
11 SBC demanded that NuVox pay all of the disputed amounts or pay the funds into escrow.  
12 SBC threatened to deny NuVox access to the collocations and/or to discontinue  
13 processing orders for UNEs if NuVox did not comply. Those demands prompted  
14 additional discussions between the parties, and in the waning days of 2001 the parties  
15 agreed that NuVox would deposit nearly \$496,000 of the disputed amount into escrow,  
16 and that the parties would engage in further negotiations. In early January, 2002 NuVox  
17 established the escrow account and made the deposit.

18 **Q. SUBSEQUENT TO NUVOX MAKING THAT ESCROW DEPOSIT, HAS SBC**  
19 **MADE ANY DEMAND ON NUVOX TO ADD FUNDS TO THE ESCROW**  
20 **ACCOUNT?**

21 A. There was further discussion of the subject between the parties in the June-July, 2002  
22 timeframe. That escrow discussion was one element of a broader discussion of potential

options for addressing the dispute. However, those discussions broke off in July, 2002 without any agreement being reached.

**Q. SUBSEQUENT TO THOSE MID-2002 DISCUSSIONS, HAS SBC MADE ANY ADDITIONAL DEMANDS ON NUVOX TO ADD FUNDS TO THE ESCROW ACCOUNT?**

A. No, my understanding is that SBC has not made any additional demands of that sort.

**Q. WOULD NUVOX BE HARMED IF IT WERE REQUIRED TO DEPOSIT ADDITIONAL AMOUNTS RELATED TO THE COLLOCATION POWER DISPUTE INTO THE ESCROW ACCOUNT?**

A. Yes. Funds deposited into escrow constitute working capital that is denied to NuVox. As a new entrant that is working its way towards the point of becoming cash flow positive, denial of the availability of significant amounts of working capital would pose a serious financial obstacle to NuVox at a critical stage of the company's development. Moreover, in the context of this dispute, any requirement for additional escrow deposits would merely reward SBC for its excessive and unwarranted collocation power billing practices, and thereby encourage it to create new barriers to the growth of facilities-based competition.

**Q. IF THE COMMISSION FOR ANY REASON DECLINES TO RATIFY NUVOX'S APPROACH OF PAYING FOR 100 AMPS OF POWER, DO YOU HAVE AN ALTERNATIVE SUGGESTION REGARDING THE PROPER AMOUNT OF POWER THAT NUVOX SHOULD BE BILLED?**

A. Yes. NuVox's alternative recommendation is that the Power Consumption MRC should be applied to 50% of the A plus B feed fused amps. For nine of the 12 Indiana

1 collocations, that would mean 140 amps times the \$6.09 Power Consumption MRC for  
2 each month covered by the dispute. For the other three collocations, the \$6.09 Power  
3 Consumption MRC would be applied to 170 amps. The Power Consumption MRC  
4 should not apply to any of the non-fused feeds because no power is “consumed” via those  
5 feeds. So, under this approach, the Power Consumption MRC would be billed on 140  
6 amps in nine collocations and on 170 amps in three collocations. When NuVox turns up  
7 its reconfigured power arrangement with 50 amps of redundant power, the Power  
8 Consumption MRC should apply to 50 amps.

9 **Q. WHAT IS THE BASIS FOR THAT ALTERNATIVE POSITION?**

10 A. Regarding the fused power feeds, it is NuVox’s position that SBC’s billing of the Power  
11 Consumption MRC should reflect that the power is redundant. In order to maintain  
12 redundancy, the CLEC must limit the power demand of the equipment it places in the  
13 collocation to 50% of the A plus B amps. When the actual power demand is limited to  
14 that level, if one power feed fails the remaining feed is capable of carrying the full load.  
15 To reflect the redundant nature of the power, SBC must apply the Power Consumption  
16 MRC to only 50% of the A plus B fused amps, not to 100% of the A plus B fused amps.

17 **Q. WHAT ARE THE IMPLICATIONS OF SBC’S PRACTICE OF BILLING THE**  
18 **POWER CONSUMPTION MRC TO 100% OF THE A PLUS B FUSED AMPS?**

19 A. By applying the Power Consumption MRC to 100% of the A plus B fused amps, SBC  
20 charges NuVox as if it were drawing the full capacity of both of the feeds of a matched  
21 feed pair – e.g., on a 30 amp A/B pair, SBC bills for 60 amps as if NuVox was drawing  
22 the full 30 amps on each of the feeds of that pair. NuVox would never do that because, if  
23 it did, it would lose the redundancy protection that dual feeds are designed to provide.

1 Using this 30 amp A/B scenario as an example and employing SBC's assumption that  
2 100% of the capacity of each of the feeds is in use, if the power supply were interrupted  
3 on the A feed for any reason, the equipment would attempt to take the 30 amp load that it  
4 had been drawing from the A feed and shift it over to the B feed. However, the SBC  
5 assumption is that the B feed is already running at 100% of its capacity – already  
6 handling a full 30 amp load. When the equipment attempts to shift 30 amps from the  
7 now-impaired A feed and move it to the B feed, the B feed will likewise fail since it  
8 would be asked to carry a combined load of 60 amps when it is only fused for 30 amps.  
9 At that point, NuVox's equipment – and the customers served by that equipment – would  
10 be out of service, because both power feeds serving that equipment would have failed.  
11 Because it would mean losing the redundant quality of the power supply, NuVox would  
12 never equip its collocations in a manner such that it would draw more than 30 amps in  
13 total over a 30 amp A/B power feed pair. Because NuVox would never place a load of  
14 more than 50% of the A plus B amps on any matched pair of power feeds, NuVox never  
15 "consumes" more than 50% of the A plus B amps and SBC should only bill the Power  
16 Consumption MRC on 50% of the A plus B amps.

17 **Q. THAT ADDRESSES THE FUSED POWER FEEDS. WHY DOES NUVOX**  
18 **BELIEVE THAT THE POWER CONSUMPTION MRC SHOULD NOT APPLY**  
19 **TO THE NON-FUSED FEEDS?**

20 **A.** As I noted previously, those feeds are incapable of supplying power in their non-fused  
21 state, and only SBC – at NuVox's request – can insert fuses into the feeds. These  
22 facilities have never supplied any power to NuVox's equipment. There is no "power  
23 consumption" that has occurred via these feeds, so it is NuVox's position that no Power

1 Consumption MRC should apply to these facilities. NuVox did not dispute the non-  
2 recurring charges associated with the installation of these non-fused feeds, so SBC has  
3 already been compensated for the costs that it has incurred in running these feeds to  
4 NuVox's collocation spaces.<sup>3</sup>

5 **Q. WHAT IMPACT DO THE SBC BILLING PRACTICES HAVE ON THE**  
6 **ECONOMICS OF COLLOCATION?**

7 A. SBC's billing practices drastically increase a CLEC's recurring costs of collocation. If  
8 one assumes that the Power Consumption MRC should only apply to 50% of the A plus  
9 B amps, and only to fused amps (not to "fictional" amps associated with non-fused  
10 feeds), then NuVox's annual bill for collocation power for its typical Indiana collocation  
11 with 140 amps of redundant, fused power would be \$10,231.20 (i.e., 140 amps x \$6.09  
12 per fuse/amp x 12 months). That contrasts with the \$43,848 that SBC has been billing  
13 NuVox for that same collocation (i.e., 600 amps x \$6.09 x 12 months). SBC's billing  
14 practices, if sustained, would significantly increase the cost of collocation and would  
15 produce a substantial disincentive for facilities-based competition.

16 **Q. HOW DOES SBC'S BILLING COMPARE TO THE ACTUAL DEMAND**  
17 **NUVOX'S EQUIPMENT PLACES ON SBC'S CENTRAL OFFICE POWER**  
18 **SYSTEMS?**

---

<sup>3</sup> The non-recurring charges for Power Delivery are, themselves, significant. In the first NuVox Indiana Interconnection Agreement which was in effect at the time the collocations were constructed, the non-recurring charge, expressed as "Power Delivery/per Power Lead" was \$1,804.42 – i.e., the charge applies separately to the A and B feeds. In the current (second) NuVox Indiana Interconnection Agreement, the non-recurring charge is likewise expressed as "Power Delivery – Per Power Lead" and is \$1,565.59.

1 A. The 600 amps SBC bills NuVox is grossly in excess of the power load that NuVox's  
2 collocated equipment draws from SBC. In actual operation, NuVox's equipment draws  
3 in the range of 10 to 25 amps per collocation in Indiana.

4 **Q. WHAT IS THE SOURCE OF THAT INFORMATION?**

5 A. First of all, I am familiar generally regarding the power demand characteristics of  
6 NuVox's collocated equipment from observations in our test lab that we maintain at our  
7 operational headquarters, and from actual measurements that have been performed from  
8 time to time at various NuVox collocations. More specifically, however, we have  
9 recently performed actual power demand measurements on all equipment bays of all of  
10 our SBC collocations, including all 12 Indiana collocations.

11 **Q. WHEN WERE THE POWER DEMAND MEASUREMENTS PERFORMED AT**  
12 **THE INDIANA COLLOCATIONS?**

13 A. In late April of this year.

14 **Q. WERE THE POWER DEMAND MEASUREMENTS PERFORMED AT YOUR**  
15 **DIRECTION?**

16 A. Yes, they were performed by an engineer on my staff at my direction.

17 **Q. PLEASE DESCRIBE HOW THOSE MEASUREMENTS WERE PERFORMED.**

18 A. The measurements were performed in a uniform manner across all of the collocations. In  
19 all instances, the A and B power leads were measured for each unique link that entered  
20 the collocation. Each lead was measured for a period of 2 minutes to allow stabilization  
21 of the measurement on the meter.

22 **Q. ARE THERE ADDITIONAL DETAILS FROM THOSE POWER**  
23 **MEASUREMENTS THAT YOU BELIEVE ARE RELEVANT TO THIS ISSUE?**

1 A. Yes. The power readings at the feed pair and individual feed levels confirm that NuVox  
2 is operating in a manner that is consistent in all instances with maintaining redundancy of  
3 the power supply. Looking at each of the 30 amp A/B feed pairs, *the maximum combined*  
4 *power load that was being drawn on any of those pairs was measured at 6.1 amps*, and in  
5 virtually all instances the maximum load drawn on any of the individual 30 amp feeds (A  
6 or B) was *less than 4 amps*. Regarding the 50 amp A/B feed pairs, the results are similar.  
7 *The maximum power load that was being drawn on any of those pairs was measured at*  
8 *7.4 amps*, and in virtually all instances the maximum load being drawn on any of the  
9 individual 50 amp (A or B) feeds was *less than 6 amps*. So long as the equipment is not  
10 drawing more than 50% of the combined A + B amps, redundancy is maintained. These  
11 results demonstrate that NuVox's equipment operates well-below the 50% parameter.

12 **Q. TO YOUR KNOWLEDGE, HAS SBC EVER ASSERTED TO NUVOX THAT ITS**  
13 **EQUIPMENT DRAWS MORE THAN 50% OF THE A PLUS B FEED AMPS IN**  
14 **ANY OF ITS INDIANA COLLOCATIONS?**

15 A. No. To my knowledge, SBC has never suggested to NuVox that it (SBC) has ever  
16 performed a check on what level of power is being drawn by NuVox's collocated  
17 equipment.

18 **Q. IS THERE ANYTHING THAT PREVENTS SBC FROM SPOT-CHECKING THE**  
19 **AMOUNT OF POWER BEING DRAWN BY NUVOX'S EQUIPMENT?**

20 A. There is nothing from a technical standpoint that prevents SBC from checking the power  
21 load being placed over the feeds that connect to NuVox's collocations.



1    **Q.    SEVERAL OF YOUR PREVIOUS ANSWERS IMPLY THAT THE**  
2           **COLLOCATED EQUIPMENT MAY DRAW POWER FROM BOTH FEEDS OF**  
3           **AN “A”/“B” PAIR. IS THAT A CORRECT INFERENCE?**

4    A.    Yes, some collocated equipment – including some of the equipment deployed in  
5           NuVox’s collocations -- does split the load across the A and B feeds. As a result for  
6           example, an equipment bay that is drawing a total load of 5 amps may draw three amps  
7           from the “A” feed and 2 amps from the “B” feed because some or all of the equipment in  
8           that bay is splitting its load across the two feeds serving that bay.

9    **Q.    WITH RESPECT TO THOSE TYPES OF EQUIPMENT IN NUVOX’S**  
10           **COLLOCATIONS THAT SPLIT THE LOAD ACROSS THE “A” AND “B”**  
11           **FEEDS, IS THAT INHERENT IN THE EQUIPMENT AS SUPPLIED BY THE**  
12           **MANUFACTURER, OR IS IT SOMETHING THAT NUVOX HAS CONTROL**  
13           **OVER?**

14   A.    It is “hardwired” into the equipment. NuVox has no control over that aspect of how the  
15           equipment functions.

16   **Q.    DOES THE FACT THAT SOME OF NUVOX’S EQUIPMENT SPLITS THE**  
17           **LOAD BETWEEN THE “A” AND “B” FEEDS CAUSE ANY INCONSISTENCY**  
18           **WITH THE REDUNDANT PURPOSE OF SUPPLYING POWER VIA A DUAL**  
19           **FEED PAIR?**

20   A.    No, not at all. Whether collocated equipment draws power over a single feed or splits the  
21           load over the A/B pair, redundancy is maintained so long as the capacity of each  
22           individual feed is sufficient to handle the full load of the equipment in the event one of  
23           the feeds in an A/B pair fails.

1    **Q.     PLEASE EXPLAIN.**

2    A.     For example, assume there is a 30 amp redundant (i.e., 30 amp A/30 amp B) feed pair  
3           connected to an equipment bay from which the total draw is 12 amps. Assume also that  
4           the equipment in this bay splits the load over the A and B feeds, such that 6 amps is  
5           drawn from the A feed and 6 amps is drawn from the B feed. If the A feed fails, the  
6           equipment is designed to take the 6 amps that had been served via the A feed and shift  
7           that load to the B feed. The B feed alone, at 30 amps, has more than sufficient capacity  
8           to handle the total load of 12 amps until the A feed is repaired and placed back into  
9           service. As I have previously noted, for every A/B pair of feeds serving NuVox's  
10          Indiana collocations, each individual power feed has more than sufficient capacity to  
11          handle the total load drawn by the equipment served by its feed pair. Thus, NuVox's  
12          collocations are configured in a manner that is completely consistent with the redundancy  
13          of the power supply.

14   **Q.     PLEASE SUMMARIZE YOUR TESTIMONY.**

15   A.     Through a combination of unreasonable provisioning and billing practices, SBC has  
16          created a situation such that it is billing NuVox for levels of collocation power that are  
17          vastly in excess of the power demands that NuVox actually places on SBC's systems.  
18          The bulk of the excess billing results from SBC applying the Power Consumption MRC  
19          to 100% of the A plus B feed fused amps (ignoring that the power is redundant in nature,  
20          a principle that effectively limits demand to no more than 50% of the A plus feed fused  
21          amps), and by applying the same Power Consumption MRC to 100% of the "fictional"  
22          amps associated with non-fused feeds (a practice that ignores the fact that no power is  
23          "consumed" via these feeds). My testimony demonstrates that NuVox's collocations

1           only exert a demand in the 10 to 25 amp range, but that SBC is billing NuVox recurring  
2           power charges as if the load were 20 to 60 times that level.

3   **Q.   DOES THIS CONCLUDE YOUR TESTIMONY.**

4   **A.   Yes, it does.**

**STATE OF INDIANA**

**INDIANA UTILITY REGULATORY COMMISSION**

**Complaint of Nuvox Communications of  
Indiana, Inc., Against SBC Indiana  
Regarding its Unlawful Billing Practices for  
Collocation Power Charges.**

**Respondent: SBC Indiana.**

**Cause No. 42398**

**PRE-FILED TESTIMONY  
OF**

**DR. AUGUST H. ANKUM**

**ON BEHALF OF**

**NUVOX COMMUNICATIONS OF INDIANA, INC.**

**PUBLIC VERSION**

**August 19, 2003**

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15 **Attachments**

16 Attachment I: Proceedings in which Dr. Ankum has filed testimony

17 Attachment II: Transmittal No. 819, dated September 1, 1994 from Ameritech to  
18 Secretary, Federal Communications Commission, modifying the rate structure and  
19 regulations for Ameritech Virtual Optical Interconnection Service (AVOIS).  
20

1

2 **I. INTRODUCTION**

3

4 **Q. Please state your name, occupation and business address.**

5 A. My name is Dr. August H. Ankum. I am a Senior Vice President at QSI  
6 Consulting, Inc., a consulting firm specializing in economics and  
7 telecommunications issues. My business address is 1261 North Paulina, Suite 8,  
8 Chicago, Illinois 60622.

9

10 **Q. Please describe your professional qualifications.**

11 A. I received a Ph.D. in Economics from the University of Texas at Austin in 1992,  
12 an M.A. in Economics from the University of Texas at Austin in 1987, and a B.A.  
13 in Economics from Quincy College, Illinois, in 1982.

14

15 My professional background covers work experiences in private industry and at  
16 state regulatory agencies. As a consultant, I have worked with large companies,  
17 such as AT&T, AT&T Wireless and MCI WorldCom ("MCIW"), as well as with  
18 smaller carriers, including a variety of competitive local exchange carriers  
19 ("CLECs") and wireless carriers. I have worked on many of the arbitration  
20 proceedings between new entrants and incumbent local exchange carriers  
21 ("ILECs"). Specifically, I have been involved in arbitrations between new  
22 entrants and NYNEX, Bell Atlantic, US West, BellSouth, Ameritech, SBC, GTE

1 and Puerto Rico Telephone. Prior to practicing as a telecommunications  
2 consultant, I worked for MCI Telecommunications Corporation ("MCI") as a  
3 senior economist. At MCI, I provided expert witness testimony and conducted  
4 economic analyses for internal purposes. Before I joined MCI in early 1995, I  
5 worked for Teleport Communications Group, Inc. ("TCG"), as a Manager in the  
6 Regulatory and External Affairs Division. In this capacity, I testified on behalf of  
7 TCG in proceedings concerning local exchange competition issues, such as  
8 Ameritech's Customer First proceeding in Illinois. From 1986 until early 1994, I  
9 was employed as an economist by the Public Utility Commission of Texas  
10 ("PUCT") where I worked on a variety of electric power and telecommunications  
11 issues. During my last year at the PUCT, I held the position of chief economist.  
12 Prior to joining the PUCT, I taught undergraduate courses in economics as an  
13 Assistant Instructor at the University of Texas from 1984 to 1986.

14  
15 **Q. Have you testified previously before any state or federal regulatory agency?**

16 **A.** Yes, I have. I have testified before this commission in Cause No. 40611, to which  
17 this complaint relates. A further list of proceedings in which I have filed  
18 testimony is attached hereto as Attachment 1.

19  
20 **II. PURPOSE AND SUMMARY OF TESTIMONY**

21  
22 **Q. What is the purpose of your testimony in this proceeding?**

1 A. The purpose of my testimony is to explain why SBC Indiana's *Collocation Power*  
2 *Consumption* billing practices are inappropriate. I will demonstrate that SBC's  
3 billing practices are inconsistent with (a) standard engineering practices; (b)  
4 SBC's own collocation and collocation power engineering technical guidelines  
5 practices; and (c) SBC's cost studies filed in support of its power consumption  
6 charges. I will also explain how condoning SBC's billing practices is bad public  
7 policy that would create a perverse incentive structure for CLECs that may  
8 endanger the reliability of the public switched network.

9  
10 Sid Morrison, also of QSI Consulting, will be testifying about the engineering  
11 principles that underlie the telecommunication industry practice of supplying  
12 power to essential facilities through redundant power feeds.

13  
14 While Mr. Morrison and I focus predominantly on NuVox's collocation  
15 arrangements with SBC Indiana, we are aware that AT&T Communications of  
16 Indiana, G.P. ("AT&T") generally shares the same collocation experiences and  
17 problems with SBC as does NuVox. AT&T joins in the recommendations I make  
18 in my testimony.

19  
20 **Q. Please summarize your conclusions and recommendations.**

21 A. CLEC equipment in collocation arrangements draws power from SBC over  
22 redundant pairs of power feeds, referred to as the "A" and "B" links. Under  
23 normal operating conditions and consistent with SBC's own collocation power



1 engineering and procedures, power consumption and, thus, power consumption  
2 charges, should never exceed 50% of the capacity of either link. To draw more  
3 than 50% per feed would eliminate the redundancy and, simply, risk unacceptable  
4 equipment outages during power interruptions. Yet, SBC assesses power  
5 consumption charges based on the irrational and unwarranted assumption that the  
6 CLECs consume power at 100% of the full fused power capacity of the A and B  
7 links. This is inappropriate.

8  
9 I will demonstrate that SBC has imposed upon NuVox and AT&T monthly  
10 recurring charges (“MRCs”) for power consumption that are far in excess -- by  
11 SBC’s own collocation power engineering practices as described herein -- of the  
12 level that NuVox’s and AT&T’s equipment is even capable of consuming, and far  
13 in excess of the power demand that their equipment places on SBC. SBC’s  
14 practice of billing the Power Consumption MRC to the sum of 100% of the A and  
15 B feed fused amps bears no relationship to SBC’s costs of providing the power  
16 actually consumed by NuVox and, if sustained, would reward SBC’s  
17 anticompetitive behavior with a monumental windfall.

18  
19 SBC Indiana’s chronic over-billing for power consumption not only  
20 creates an anticompetitive windfall for SBC Indiana at the expense of CLECs  
21 (like NuVox and AT&T) attempting to compete with SBC Indiana, it also  
22 provides CLECs with a perverse incentive structure and induces them to draw  
23 more power per feed than is warranted from a sound engineering perspective. As

1 such, SBC's billing practices are also inconsistent with public policies that seek to  
2 ensure sound engineering practices and a reliable public switched network for  
3 ratepayers of the state of Indiana.  
4

5 **III. BACKGROUND OF COMPLAINT**  
6

7 **Q. Please explain the background of the dispute over SBC Indiana's billing**  
8 **practices as they relate to the power consumed by collocating CLECs.**

9 A. As explained in more detail in the testimony of Sid Morrison, ILECs provide  
10 power to collocated CLEC equipment via the use of dual feed pairs -- i.e., paired  
11 "A" and "B" feeds, fused at specified levels. Power is provisioned via dual feeds  
12 in order to provide redundancy -- i.e., to permit continuity of service in the event  
13 the power flow in either of the feeds of a matched pair is interrupted. That is, if  
14 power is interrupted in, say, power feed A, then power feed B should have been  
15 engineered with sufficient spare capacity to suddenly accommodate 100% of the  
16 power consumption requirements to prevent equipment outages. This need to  
17 always maintain a sufficient amount of spare capacity per power feed also means  
18 that no power feed should carry more than 50% of the fused capacity, lest the pair  
19 ceases to be redundant. In view of this, NuVox's and AT&T's position is that  
20 power consumption and, hence, power consumption charges should never exceed  
21 more than 50% of the fused power per feed (or 50% of the total fused power  
22 capacity of the A and B pair.)

1  
2 By contrast, SBC Indiana assesses the applicable monthly recurring *Power*  
3 *Consumption* per fuse/amp charge on 100% of “A” feed amps plus 100% of the  
4 “B” feed amps for all dual feed pairs.<sup>1</sup>

5  
6 **Q. In fact, does SBC assess power consumption charges even to power feeds that**  
7 **have never been fused and that cannot possibly have supplied and drawn any**  
8 **power at all?**

9 A. Yes. SBC assesses the Power Consumption MRC even to power feeds that have  
10 never been fused and have never supplied any power to collocated equipment.<sup>2</sup>

11 This is not appropriate particularly since, as Mr. Morrison testifies in more detail,  
12 the actual level of power demand that NuVox’s collocation equipment draws from

---

<sup>1</sup> These rates are set by the applicable interconnection agreements as approved by the state commissions. The charges at issue are described as, “Power Consumption/per fuse amp” or “Power Consumption -- per DC fuse amp.” Currently, the applicable SBC Indiana rates is \$6.09.

<sup>2</sup> At the time NuVox was constructing its Ohio and Indiana collocations, SBC (via its predecessor, Ameritech) also engaged in certain provisioning practices that exacerbate the overcharging for collocation power. These practices included: (a) Ameritech’s refusal to permit CLECs to deploy -- via the standard collocation application process -- their own power distribution panels within their collocation spaces. (Applications for such “distributed power arrangements” were confined to an amorphous and unworkable “non-standard application” process which provided no certainty to CLECs regarding price, construction timelines, or even whether the arrangement would ultimately be allowed at all); and, (b) A requirement that power feeds be sized at 150% of the maximum rated capacity of the equipment to be served (rather than the 125% standard followed by other ILECs). Because time was of the essence for facility-based CLEC market entry, NuVox had no practical choice but to operate under the limitations Ameritech dictated. After NuVox’s collocations had been constructed and equipped and the power supply arrangements had already been implemented, both of these Ameritech practices were corrected in late 2000. But having forced NuVox into a highly inefficient power supply arrangement, Ameritech then erected an additional barrier which, at the time, effectively prevented NuVox from taking advantage of the modified SBC policies. Ameritech achieved this by insisting that any conversion to a distributed power arrangement be accompanied by a “mining-out” of the to-be deactivated power feeds (i.e., those that terminated directly into NuVox’s equipment bays), with all costs of the rearrangement to be borne by NuVox. At the time, the additional one-time costs for such a rearrangement on 45 collocations was estimated to be in the neighborhood of \$1 million -- an additional cost that NuVox could not accommodate in its start-up phase of facilities-based operations.

1 SBC's central office power systems in Ohio and Indiana is significantly lower  
2 than the fused redundant power per feed that terminates to NuVox equipment.  
3

4 **Q. What is SBC's alleged reason for billing NuVox for 100% of the fused power**  
5 **per power feed?**

6 A. SBC recently has argued to the FCC that it is justified in billing CLECs like  
7 NuVox for both fused A and B feeds since each of the individual power feeds of a  
8 dual feed pair are *theoretically capable* of supplying a level of power equal at  
9 their *full capacities* in amps. That is, the Power Consumption MRC should, in  
10 SBC's view, be billed at 100% of A feed amps plus 100% of the B feed amps,  
11 because the CLEC has reserved that amount of power.<sup>3</sup> In other words, for a 30  
12 amp dual feed pair serving a particular equipment bay, SBC's approach is that  
13 since the A and B feeds theoretically could supply their full 30 amps each, the  
14 Power Consumption MRC should be billed on 60 amps, rather than 30 amps.  
15

16 As will be discussed in more detail below, SBC Indiana's billing practice cannot  
17 be reconciled with either the fundamental concept of redundancy in the  
18 collocation power supply connections or the cost justification that it provided to  
19 the Commission when it requested approval of its TELRIC rates for collocation.  
20

---

<sup>3</sup> See *In the Matter of Application by SBC Communications Inc.*, WC Docket No. 03-16, Reply Affidavit of Scott J. Alexander Regarding Wholesale Policy Issues at ¶¶ 7-11 (SBC "must, in effect be prepared to provide the full capacity of both leads and must manage power demands on its power plant facilities based on that parameter....the fact that [CLECs] may not have continuously drawn power from the "B" lead it ordered does not relieve it from its obligation to pay for the power capacity it has effectively reserved.")

1    **Q.     Please summarize the reasons for why SBC's billing practices are**  
2    **inappropriate.**

3    **A.     SBC's billing practices are inappropriate for the following reasons:**

- 4           --     SBC's billing practices do not comport with the cost studies that support  
5                   the tariffed collocation power consumption rates.  
6  
7           --     SBC's billing practices are inconsistent with SBC's own technical  
8                   documents for collocation power engineering and practices.  
9  
10          --     SBC's billing practices would create a perverse incentive structure that  
11                   will endanger the reliability of the public switched network.  
12

13           In what follows, each of these reasons is discussed in more detail.  
14

15    **IV.    SBC'S BILLING PRACTICES ARE INCONSISTENT WITH**  
16    **ITS OWN COLLOCATION POWER ENGINEERING**  
17    **GUIDELINES AND OTHER DOCUMENTS**  
18

19    **Q.     Does SBC's collocation power guidelines prescribe how power should be**  
20    **delivered to the collocated equipment?**

21    **A.     Yes. SBC's relevant central office and collocation technical documents have a**  
22           direct bearing on the maximum amount of power SBC can reasonably assume will  
23           be consumed by a CLEC. In fact, they conclusively show that (a) power feeds are  
24           redundant, and (b) power consumption per power feed should not exceed 50% of  
25           the fused power per feed. In view of SBC's own documents, it is clear that  
26           SBC's billing practices are inappropriate.  
27

1    **Q.     Please demonstrate that SBC's own technical documents show that power**  
2           **feeds are engineered to be redundant.**

3    A.     SBC's technical documents explicitly state that the dual power feed sets are  
4           intended for redundancy. Specifically, SBC collocation provisioning guidelines<sup>4</sup>  
5           state the following:

6                   11.14

7                                   **\*\*SEE CONFIDENTIAL VERSION FOR TEXT\*\***  
8  
9

10  
11  
12                   (emphasis added).  
13  
14  
15

16   **Q.     Please demonstrate that SBC's own technical documents provide that power**  
17           **consumption should not exceed 50% of the fused power per feed.**

18   A.     SBC's technical documents provide that power consumption should not exceed  
19           50% of the fused power per feed. Specifically, SBC's Local Exchange Carriers  
20           Collocation Provisioning Guidelines provides the following:<sup>5</sup>

21                   11.17

22                                   **\*\*SEE CONFIDENTIAL VERSION FOR TEXT\*\***  
23  
24  
25  
26  
27  
28

---

<sup>4</sup> SBC-002-316-002, Issue 10.0, September 4, 2000 (SBC Local Exchange Carriers Collocation Provisioning Guidelines).

<sup>5</sup> SBC-002-316-002, Issue 10.0, September 4, 2000 (SBC Local Exchange Carriers Collocation Provisioning Guidelines).

<sup>6</sup>(Emphasis added.)

**Q. In short, do SBC's own technical documents demonstrate that SBC's billing practices are inappropriate?**

**A.** Yes. SBC's own documentation belies its justification for its collocation power practices on several counts. First, the documentation acknowledges an expectation by SBC that the CLEC's equipment will draw power from both feeds of a dual feed (A/B) pair. Second, through this provision (and others), SBC imposes an explicit limitation on the power demand that a CLEC is allowed to place on any individual feed of a dual feed pair. That maximum demand is 50%. Third, the language recognizes that this 50% maximum demand per individual feed is consistent with the principle of redundancy -- i.e., it recognizes that no circuit design limitation will be exceeded so long as the CLEC is in compliance with the 50% maximum demand limitation on each feed. And finally, and perhaps most notably, the language recognizes that a maximum of 50% demand on each feed -- or a maximum of 100% demand on the remaining working feed when the other feed of a dual feed pair fails -- constitutes "full utilization of the tariff rate purchased." This provision recognizes *that SBC is fully compensated when the CLEC pays for 50% of the sum of the A plus B fused amp feeds (or pays for 100%*

---

<sup>6</sup> See also, Section 7.10 of TP 76200 MP (Equipment Requirements, May 2001, SBC Local Exchange Carriers), " **SEE CONFIDENTIAL VERSION FOR TEXT**

1        *of the fused amps associated with a single working feed when the other feed of a*  
2        *dual feed pair goes out of service.*

3  
4        In other words, if a CLEC orders 40 amps of power into an equipment bay:

- 5        ■ It will be redundant power;
- 6
- 7        ■ It should be provisioned via a dual feed pair consisting of a 40 amp A feed
- 8        and a 40 amp B feed;
- 9
- 10       ■ The CLEC is under an operating requirement to limit the demand it places
- 11       over either of those feeds to a maximum of 20 amps per feed;
- 12
- 13       ■ If the A feed fails, it will carry zero power and the B feed will carry the
- 14       combined load of up to 40 amps until the A feed is restored;
- 15
- 16       ■ Consistent with these operating requirements, the CLEC is barred from ever
- 17       placing a power demand on SBC's system that exceeds 40 amps;
- 18
- 19       ■ Consistent with SBC's rates, the CLEC should pay the Power Consumption
- 20       charge on 40 amps (not on 80 amps, as SBC would have it).<sup>7</sup>
- 21

22    **Q.    Do SBC's own technical guidelines in fact require its own power engineers to**  
23        **ensure that power feeds do not carry more than 50% of their fused power?**

24    **A.    Yes. SBC technical guidelines place an explicit obligation on its engineers to**  
25        **monitor and enforce the 50% maximum load per feed requirement. SBC requires**  
26        **that:**<sup>8</sup>

---

<sup>7</sup>        See also, Bell Service Practice, SBC Local Exchange Carriers, 790-100-656 MP, Issue B, November 2, 2000, at p. 6, Section 4.1.3.: “ **SEE CONFIDENTIAL VERSION FOR TEXT**

” (emphasis added).

<sup>8</sup>        See Bell Service Practice, SBC Local Exchange Carriers, 790-100-656 MP, Issue B, November 2, 2000, p. 8, Section 4.2.9.) (emphasis added).



**\*\*SEE CONFIDENTIAL VERSION FOR TEXT\*\***

9

In short, it is simply not possible that power consumption exceeds 50% of the fused power per feed -- SBC's alleged reason for billing at a rate of 100% of the fused power. Furthermore, if power consumption for some reason does exceed 50% of the fused power per feed, then SBC's own engineers have failed to do their jobs.

**Q. Do SBC's billing practices resolve the problems that the company alleges it is trying to resolve.**

**A. No. As demonstrated, SBC's power billing practices, however, blatantly ignore its technical requirements for CLECs, which limit their use of power to 50% of**

---

<sup>9</sup> See Bell Service Practice, SBC Local Exchange Carriers, 790-100-656 MP, Issue B, November 2, 2000, p. 8, Section 4.2.9.) (emphasis added). See also, *Id.*, Sec 4.2.10: "...**SEE CONFIDENTIAL VERSION FOR TEXT**" (emphasis added).

1 the fused capacity of individual feeds. Rather than having its engineers comply  
2 with its own explicit monitoring obligations, SBC effectively assumes, for billing  
3 purposes, that all CLECs violate this requirement, and assumes that they do so to  
4 the maximum extent theoretically possible -- i.e., SBC's billing practice assumes  
5 that all CLECs draw 100% of the full amps on both the A and B feeds. This is  
6 neither appropriate nor is it the appropriate way to resolve whatever improprieties  
7 may exist.

8  
9 **Q. Has NuVox deliberately drawn more than 50% of the fused power per power**  
10 **feed to warrant being charged for 100% of the fused power of the power**  
11 **feeds?**

12 A. No. Not only does SBC violate its own collocation technical requirements when  
13 it makes this assumption, it does so without any evidence whatsoever to support  
14 its validity as applied to a particular CLEC. This is certainly true with respect to  
15 NuVox, since at no time during the entirety of the more than 2 years since this  
16 dispute first arose has SBC ever even suggested that NuVox was drawing more  
17 than 50% of the capacity of any individual power feed.

18  
19 To the contrary, the recent power measurements taken by NuVox confirm that *its*  
20 *equipment in the vast majority of cases is drawing less than 10% of the fused*  
21 *amps of any individual feed*, and in no instance is drawing anything even remotely  
22 approaching 50% of the fused amp capacity of an individual feed.

1    **Q.    How do you know that the cost studies relied upon by the IURC when it**  
2           **approved SBC Indiana's power charge do not contemplate the application of**  
3           **the charge over all amps that may be supplied to the collocation space?**

4    **A.    This is an issue that is answered by examining the cost studies that SBC filed in**  
5           **support of its collocation studies in general and its collocation power consumption**  
6           **study in particular. The cost studies are discussed in more detail in a separate**  
7           **section below. At this point, however, it should be noted that SBC's argument in**  
8           **support of its billing practices has primarily been that CLECs are able to draw**  
9           **100% of the fused power over all power feeds and therefore SBC assumes that**  
10          **they do so -- even though all evidence points to the contrary.**

11  
12    **V.    SBC INDIANA'S APPLICATION OF POWER CHARGES**  
13          **WOULD PROVIDE FOR PERVERSE INCENTIVES AND**  
14          **INDUCE CLECS TO ENGAGE IN UNSOUND PRACTICES**  
15

16    **Q.    Do SBC's power consumption billing practices create perverse incentives for**  
17          **CLECs?**

18    **A.    Yes. Most CLECs, and certainly NuVox and AT&T, would continue to employ**  
19          **responsible collocation power engineering practices and order and construct**  
20          **redundant power feeds to protect themselves and their customers against the**  
21          **eventuality of power disruption. As always, however, redundant systems,**  
22          **whether for power or otherwise, are costly. To the extent that SBC's**  
23          **inappropriate power consumption practices penalize CLECs for constructing**

1 engineered power redundancy, SBC further increases the costs of responsible  
2 collocation power engineering. As such, SBC is creating an *artificial disincentive*  
3 to engineer redundant systems. To be sure, when SBC charges CLECs, as  
4 demonstrated above, for power that is in fact never consumed at all, CLECs are  
5 being penalized for acting responsibly and having redundant power feeds. To the  
6 extent that they are being overcharged for redundant power feeds, CLECs will  
7 have a perverse incentive to use those power feeds to a greater extent than they  
8 should. This is not a good public policy to pursue.

9  
10 **Q. Would the perverse incentives created by SBC's billing practices endanger**  
11 **the reliability of the public switched network?**

12 A. Yes. To the extent that SBC's collocation power consumption practices may  
13 induce individual CLECs to overuse their "redundant" power feeds to cut cost,  
14 this would create a situation in which the CLEC portion of the public switched  
15 network will possibly be engineered inconsistent with sound power engineering  
16 principle, as found, for example, in SBC's technical documents cited above.  
17 Thus, as the CLEC portion of the public switched network grows in importance,  
18 SBC's billing practices for collocation power consumption may endanger the  
19 reliability of the public switched network and expose ratepayers to increased  
20 dangers of power outages. Again, condoning SBC's billing practices for  
21 collocation power consumption is bad public policy.

1    **Q.     How should SBC deal with SBC's alleged instances in which certain CLECs**  
2           **draw more than 50% of the fused power per power feed?**

3    **A.     I am not aware of any instances in which CLECs systematically draw more than**  
4           **50% of the power for which individual power feeds are fused and engineered. In**  
5           **fact, as previously discussed, this practice violates SBC's collocation power**  
6           **engineering guidelines and should be impossible if SBC's collocation power**  
7           **engineers do their job and monitor the systems as they should. That is, SBC's**  
8           **power engineers would detect the "cheating" and investigate the situation -- as**  
9           **required by SBC own guidelines -- and resolve whatever problem may have**  
10          **caused the overuse of the power feeds. In short, it is simply unlikely that these**  
11          **situations do really exists.**

12  
13        Nevertheless, to the extent that the situations do exist, SBC should deal with the  
14        "cheating" CLECs on an individual case basis and correct the problem. It is not  
15        appropriate to assume, as SBC does, that all CLECs will violate responsible  
16        engineering practices and to simply charge for power consumption that never  
17        occurs. In fact, if anybody is cheating here, it is SBC and the Commission should  
18        order SBC to stop it and play by the book, i.e., their own technical documents and  
19        tariffs.

**VI. SBC INDIANA'S APPLICATION OF POWER CHARGES  
DOES NOT COMPORT WITH SBC'S COST STUDIES FILED  
IN CAUSE NO. 40611.**

**Q. Why are SBC's cost studies for power consumption relevant to the question  
of how power consumption charges should be applied?**

A. SBC Indiana in a very real sense is the landlord of the buildings in which the collocation space is located and it controls the delivery of power to CLECs' collocated equipment. The supply of power to operate CLECs' equipment within the collocation space is governed by the interconnection agreement that exists between SBC Indiana and the particular CLEC. That agreement, in turn, must be consistent with the requirements of the Telecommunications Act of 1996 and the rules set forth by both the IURC and the FCC. The IURC approved the basic methodology for calculating SBC Indiana's collocation power charge on June 30, 1998, in Ameritech Indiana Cause No. 40611. The IURC's approval of that methodology was predicated upon the cost studies supplied by (then) Ameritech Indiana showing the forward-looking cost basis for those rates.

**Q. Does SBC Indiana's application of its collocation power charge comport with  
the cost study that was used to support the rate for collocation power that  
was approved by the IURC?**

A. No, it does not.

**Q. Please explain your answer.**

1     A.     The costs study used by SBC Indiana to support its collocation power charge was  
2           essentially conducted in 1996 and was based on earlier cost studies that were filed  
3           with the FCC in support of (then) Ameritech Operating Companies' Virtual  
4           Optical Interconnection Service offered in Section 16 of Ameritech's Tariff  
5           F.C.C. No. 2. in 1994. Both the earlier cost studies filed with the FCC and the  
6           later, Indiana-specific cost studies contemplate that the cost of power will be  
7           driven by the *actual consumption* of the equipment located within the collocation  
8           spaces, *not* by the cost of the *theoretical maximum amperage* that could be  
9           supplied by the electrical leads serving the collocation space, as SBC Indiana's  
10          billing practice accomplishes.

11  
12          By charging CLECs for the cost of power as measured by the maximum  
13          amperage that can be drawn on both the A and B leads into the collocation space,  
14          SBC Indiana is *overcompensated by a minimum of 100%*. After taking into  
15          account all of the various other engineering redundancies in the rating of  
16          equipment and facilities used by NuVox in its collocation space, the actual  
17          overcompensation is more like 2,300%. The audits conducted by Mr. Morrison  
18          and discussed in his testimony bear this out.

19  
20     **Q.     What other evidence indicates that SBC Indiana's billing practice is**  
21           **improper?**

22     A.     As explained above, SBC Ohio and SBC Indiana have billed the Power  
23           Consumption MRC to NuVox on 100% of fused "A" feed amps plus 100% of the

1 fused “B” feed amps for all dual feed pairs that are connected to NuVox  
2 collocated equipment. However, SBC’s own documents demonstrate that this  
3 practice is directly contrary to its collocation cost studies and to its own explicit  
4 central office and collocation technical requirements.

5  
6 In its responses to discovery in NuVox’s Complaint case, SBC has indicated that  
7 the basis for the collocation power charges billed to NuVox is found in filings  
8 made with this Commission by Ameritech in 1994. Specifically, SBC refers to  
9 FCC Transmittal No. 819.<sup>10</sup> In the supporting documentation submitted as part of  
10 that Transmittal SBC defines the “Power Consumption” MRC as the rate element  
11 that:

12 **\*\*SEE CONFIDENTIAL VERSION FOR TEXT\*\***  
13  
14  
15  
16  
17  
18  
19

20 <sup>11</sup> (Emphasis added.)  
21

22 Thus, the cost development is based on the power expected to be *consumed* by the  
23 collocater.

---

<sup>10</sup> See, Ameritech Operating Companies, Tariff F.C.C. No. 2, Access Service, Expanded Interconnection, Transmittal No. 819, dated September 1, 1994 and Amended Transmittal No. 819, dated October 4, 1994.

<sup>11</sup> Transmittal 819, Description and Justification, pp. 4-5, and Exhibit 3.



1    **Q.    How do you know that fixed costs associated with providing power to the**  
2           **collocation space are not intended to be included and recovered in the power**  
3           **consumption charges?**

4    **A.    The supporting information for Transmittal 819 also is clear regarding that fact**  
5           **that the Power Consumption charge was *not designed to recover the costs***  
6           ***associated with Ameritech's central office power infrastructure.* Instead, a non-**  
7           **recurring "Power Delivery" rate element was explicitly introduced to account for**  
8           **and ensure recovery of those costs.<sup>12</sup>**

9           Tab 10 of the Physical Collocation cost study dated July 17, 1998, filed in  
10          compliance with the Commission's June 30, 1998 order in Cause No. 40611, is  
11          fully consistent with the methodology described above.

12               **\*\*SEE CONFIDENTIAL VERSION FOR TEXT\*\***

13  
14  
15  
16          The inclusion of both the KWH factor and the air conditioning factor in this  
17          calculation inextricably ties this charge to power *consumed*.

18  
  

---

<sup>12</sup>    The Description and Justification for Transmittal 819 provides that: the "Power Delivery" rate  
element "       **SEE CONFIDENTIAL VERSION FOR TEXT**

1    **Q:    Does SBC pay its electric service provider for 100% of the capacity of the A**  
2           **feed and 100% of the B feed, whether used or not?**

3    **A:    No, SBC does not. To the contrary, SBC itself only pays its electric provider for**  
4           **the power that is consumed.**

6    **VII. CONCLUSION AND RECOMMENDATIONS**

8    **Q.    How should SBC Indiana apply its IURC-approved power charge in order to**  
9           **comport with the manner in which that charge was derived?**

10   **A.    Ideally, power consumption would be assessed based on the power that a CLEC**  
11           **consumes. However, in the absence of power consumption measuring equipment,**  
12           **power consumption charges should be assessed consistent with the collocation**  
13           **power engineering principles that underlie the construction of the power feeds.**  
14           **This means that power consumption charges should be assessed based on the**  
15           **assumption that no feed delivers power at no more than 50% of its fused power.**  
16           **That is, power consumption charges should be assessed at no more than 50% of**  
17           **the fused power per feed. Further, for feeds that are not fused and carry no**  
18           **power, no power consumption charges should be assessed.**

20   **Q.    Does this conclude your testimony?**

21   **A.    Yes it does.**

**STATE OF INDIANA**  
**INDIANA UTILITY REGULATORY COMMISSION**

**Complaint of Nuvox Communications of  
Indiana, Inc., Against SBC Indiana  
Regarding its Unlawful Billing Practices for  
Collocation Power Charges.**

**Respondent: SBC Indiana.**

**Cause No. 42398**

**PRE-FILED TESTIMONY  
OF  
DR. SIDNEY L. MORRISON  
ON BEHALF OF  
NUVOX COMMUNICATIONS OF INDIANA, INC.**

August 19, 2003

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**Exhibits**

Exhibit SLM-1	Cirriculum Vitae of Sid L. Morrison
Exhibit SLM2	NuVox Collocation Site Inventory – Fleetwood Co
Exhibit SLM-3	NuVox Collocation Site Inventory – Liberty Co
Exhibit SLM-4	NuVox Collocation Site Inventory – Chapel Co

**I. INTRODUCTION AND PURPOSE OF TESTIMONY**

**Q. PLEASE STATE YOUR NAME, OCCUPATION AND BUSINESS ADDRESS.**

A. My name is Sidney L Morrison. My business address is 10176 Savannah Sparrow Way, Highlands Ranch, Colorado 80129.

**Q. PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE.**

A. I have over 30 years of experience in the telecommunications industry. I began my telecommunications career in 1966 in Charlotte, North Carolina as a cable helper for Southern Bell Telephone and Telegraph. Southern Bell was an incumbent local exchange carrier managing numerous exchanges throughout North Carolina. My duties involved splicing underground, buried and aerial cable. I also worked as a switching technician and special services technician.

Beginning in August of 1970, I transferred to Mountain Bell in Denver, Colorado as a central office technician. In 1972, I was promoted to supervise main distributing frame operations. My duties included supervising the installation of POTS, Special Services, Central Office area cuts, main distribution frame replacements and many other projects. In 1980 and 1981, I performed time and motion studies for service provisioning on approximately 75 of Mountain Bell's MDF operations. These time and motion studies included components for jumper

1 running and administrative activities on each of these frames. From 1983 until  
2 1986, I was the switching control center and main distributing frame subject  
3 matter expert for US WEST. In this position, I was responsible for staff level  
4 support for service provisioning and maintenance including the development of  
5 enhancements for operational support systems (OSS) supporting these activities.  
6 From 1986 until 1993, I was responsible for the US WEST AMA ("Automatic  
7 Message Accounting") teleprocessing organization for the fourteen state US  
8 WEST region.

9  
10 In 1993, I retired from US WEST and began contract engineering work and  
11 consulting. In 1995 I took an assignment in Kuala Lumpur, Malaysia as a  
12 contractor/consultant with a team of specialists to build a CLEC network  
13 consisting of a Global System for Mobil (GSM) communications services, fixed  
14 network services, cable television services and data services integrated into a  
15 common transport backbone.

16  
17 I had a number of responsibilities in Malaysia, the most important of which was  
18 organizing and implementing a field operations group (FOG) that was responsible  
19 for the installation and maintenance of all fixed network and cable television  
20 services. My responsibilities included the planning, organizing, staffing and  
21 implementation of the FOG, including an installation and maintenance group,  
22 assignment center, dispatch center, test center and a repair center. I also had the

1 responsibility of developing business processes and OSS system requirements for  
2 provisioning and maintenance supporting the FOG.

3  
4 After launching the FOG, I managed the day-to-day operations of the department,  
5 ultimately refining the organization into an ISO 9002<sup>1</sup> qualified organization. In  
6 January 1997, the Binariang Maxis FOG became the first certified ISO 9002  
7 service organization in Southeast Asia.

8  
9 I returned from Malaysia in June of 1997 and worked for approximately two years  
10 as a contract outside plant/central office equipment (OSP/COE) engineer, and  
11 trained new engineers for US WEST collocation efforts.

12  
13 In May 1999, I accepted a contract in Switzerland building a new CLEC under the  
14 market name of diAx telecommunications. My responsibilities involved project  
15 management to establish OSS supporting all wireless, wireline, and data services  
16 offered by diAx. I also provided consulting services developing business  
17 processes supporting the establishment of the diAx Internet Provider Operations  
18 Center (IPOC) and diAx data services offerings. I established system  
19 requirements based on IPOC business processes for fault management systems,  
20 provisioning systems, capacity inventory systems, customer service inventory

---

<sup>1</sup> International Organization Standards, ISO 9002 is the standard set of requirements for an organization whose business processes range from, production, installation and servicing.

1 systems and workflow engines controlling overall maintenance and provisioning  
2 processes.

3  
4 In December 2000, I returned from Switzerland and began working for QSI  
5 Consulting Inc. as a Senior Consultant. I provide telecommunications companies  
6 with engineering advice and counsel for direct network planning, management  
7 and cost-of-service support. My specific areas of expertise include network  
8 engineering, facility planning, project management, business system applications,  
9 incremental cost research and issues related to the provision of unbundled  
10 network elements.

11  
12 A more comprehensive description of my work experience and educational  
13 background is included as Exhibit SLM-1.

14  
15 **Q. HAS QSI BEEN ENGAGED BY NUVOX TO PROVIDE TESTIMONY IN**  
16 **THIS CAUSE?**

17 A. Yes, it has. Dr. August H. Ankum of QSI Consulting is also submitting testimony  
18 on behalf of NuVox in this matter.

19  
20 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

21  
22 A. The purpose of my testimony is to discuss the results of a site audit of NuVox  
23 collocations that QSI performed for purposes of this case. In connection with that  
24 discussion I explain the applicable engineering standards for central office power



1 systems and assess NuVox's collocation arrangements in the context of those  
2 standards. I also evaluate the power needs of NuVox's equipment relative to the  
3 amount SBC bills NuVox for collocation power.

4  
5 **II. DISCUSSION OF QSI'S COLLOCATION AUDIT**

6  
7 **Q. HAS QSI INSPECTED THE POWER DISTRIBUTION ARRANGEMENTS**  
8 **IN NUVOX'S COLLOCATIONS?**

9 A. Yes. At NuVox's request, QSI Consulting performed a collocation power  
10 distribution audit of a representative sample of NuVox's collocations in Ohio and  
11 Indiana.

12 **Q. WHAT WAS THE PURPOSE OF THE COLLOCATION SITE AUDIT?**

13 A. The purpose of the audit was to answer several critical questions concerning the  
14 power distribution arrangements existing in NuVox's collocations in SBC central  
15 offices, including:

- 16 (a) Whether NuVox uses a standard DC power distribution method;  
17 (b) Whether NuVox is paying for excessive power that cannot practically be used  
18 in the collocation configurations as they exist;  
19 (c) Whether it is likely that NuVox will be able to use the amount of power it is  
20 being billed for by SBC at any time in the future; and,  
21 (d) Whether NuVox is utilizing the DC power distribution network in such a  
22 manner as to exceed the A/B redundancy current capacity of the network and,  
23 thus, using more power than the intended design requires.

1   **Q.    WAS THE AUDIT CONDUCTED BY YOU OR UNDER YOUR**  
2       **SUPERVISION?**

3   A.    Yes. I conducted the audit with the assistance of Peter Gose of QSI Consulting.  
4

5   **Q.    HOW MANY OF NUVOX'S COLLOCATIONS WERE INCLUDED IN**  
6       **THE AUDIT?**

7   A.    QSI inspected 7 collocation sites, including 3 of NuVox's Indiana collocations.  
8

9   **Q.    WHEN WAS THE COLLOCATION SITE AUDIT CONDUCTED?**

10 A.    The audit was conducted May 13-14, 2003.  
11

12 **Q.    PLEASE DESCRIBE IN GENERAL TERMS HOW THE AUDIT WAS**  
13 **CONDUCTED.**

14 A.    The audits consisted of physical visits to the collocation sites to inspect the SBC  
15 DC power distribution network that services the NuVox central office  
16 collocations. The audits also included an inspection of the NuVox collocation  
17 equipment and the application of engineering standards. More specifically, the  
18 audit consisted of an examination of the physical construction of the collocation  
19 site with respect to the application and distribution of power within the  
20 collocation. During each audit the power management within the collocation was  
21 examined to determine if power is distributed and managed in a manner consistent  
22 with industry standards. The method of procedure for the collocation site audits

1 was to determine how collocation power is being utilized by NuVox within the  
2 collocation cage. QSI also set out to determine if there were any indications that  
3 NuVox utilizes collocation power in any manner other than the standard  
4 application of power for equipment operation under normal and redundant needs.  
5 The audit also sought to determine if power in any circumstance exceeded the  
6 capability ordered by NuVox to power its service carrying and support equipment.  
7

8 **Q. PLEASE DEFINE THE “ENGINEERING STANDARDS” AND**  
9 **“INDUSTRY STANDARDS” YOU WERE REFERRING TO IN YOUR**  
10 **PREVIOUS ANSWER.**

11 A. The engineering and industry standards I referred to are those found in standard  
12 documents used in the industry such as the various Telecordia engineering  
13 guidelines. When reporting on my audit of NuVox’s collocation arrangements, I  
14 will where necessary provide references to specific industry documents. Of  
15 course, given that I have engineered or supervised the engineering of power plants  
16 and collocation arrangements for US West, among others, I have personal, hands  
17 on, familiarity with industry standards and am knowledgeable regarding what  
18 accepted practices exist in the industry.  
19

20 **Q. WHAT SPECIFIC PROCEDURES WERE USED IN THE AUDITS?**

21 A. QSI employed the following procedures:

- 22  
23 (1) The QSI audit team consisted of two senior consultants, including an  
24 experienced telecommunications engineer and operations manager.

- (2) The audit team was escorted by NuVox managers/technicians during the audits.
- (3) The QSI audit team had ready and unfettered access to the NuVox collocation sites, while adhering to security and safety methods for making collocation site observations.
- (4) The sites visited were caged NuVox collocation sites.
- (5) A standard examination and observation was conducted.
- (6) A check list of items (as described more fully below) was completed by the QSI staff to determine the state of the collocation site.
- (7) The collocation sites comprised a representative sample and not a complete audit of all NuVox collocation sites in Ohio and Indiana.
- (8) Collocation site consistency with industry standards was determined by the QSI staff.

**Q. WHAT CHECKLIST OF ITEMS DID QSI UTILIZE IN THE AUDIT?**

A. The following checklist was used for each collocation that was visited. The first column lists the various components of the collocation arrangements. The second column would be used to report on whether the components meet the standard engineering requirements. The last column would be used to report when the components deviate from standard engineering requirements.

**COLLOCATION SITE CHECK LIST**

ITEM	Required	Deviation
Service supporting equipment power wiring A/B leads	X	
Service supporting equipment fusing A/B fuses	X	
Service supporting equipment power redundancy	X	
Indications of A/B lead splits for separate loads	X	
Relay rack installation	X	
Equipment shelf installation	X	
Cable rack installation	X	
Fuse panel placement	X	
Fuse panel A/B wiring	X	
Fuse panel fusing A/B	X	
Power cable termination on fuse panels	X	
Breaker panel placement	X	
Breaker panel A/B wiring	X	
Power cable termination on breaker panel	X	
Power cable placement in overhead racks	X	
Power cable lacing or tie down	X	
Power cable placement in relay racks	X	
Power cable lacing or tie down in relay racks	X	
Power cable routing in relay racks	X	

**Q. WHAT IS THE SOURCE OF THIS CHECKLIST?**

A. The source is Bellcore (now Telcordia) generic requirements, GR-1502-CORE, Issue June 1994, "Central Office Environment Detail Engineering Generic Requirements."

**Q. WHAT IS THE PURPOSE OF THESE REQUIREMENTS?**

A. The purpose of GR-1502-CORE ensures that equipment installations operate within intended engineering parameters. These standards apply to both owned or leased telecommunications equipment buildings and are part of the effort to guarantee that equipment is installed efficiently and safely and meets minimum

standards for installation site reliability and survivability. ILECs are free to implement their own standards. These standards are generally accepted throughout the industry as a minimum expectation for cost effective, efficient and safe installations. These requirements are accepted as the standard for all types of equipment installed within the telecommunications network, which consist of common systems, switching, and transmission and collocation equipment of various configurations. The audit checklist implementation is designed to capture the intent and detail level requirements of the GR-1502-CORE.

**Q. YOU HAVE INDICATED THAT THREE OF THE SEVEN COLLOCATIONS INCLUDED IN THE AUDIT WERE LOCATED IN INDIANA. SPECIFICALLY WHICH INDIANA COLLOCATIONS WERE VISITED BY QSI?**

**A.** The following NuVox Indiana collocations were visited:

Fleetwood	--	CLLI: IPLSIN03H14
Liberty	--	CLLI: IPLSIN02H15
Chapel	--	CLLI: IPLSIN08H31

**Q. ARE THESE THREE COLLOCATIONS GENERALLY REPRESENTATIVE OF ALL OF NUVOX'S INDIANA COLLOCATIONS WITH RESPECT TO THE POWER DISTRIBUTION ARRANGEMENT AND POWER CONSUMPTION CHARACTERISTICS?**

**A.** Yes, they are.

1

2   **Q.     DID THE QSI AUDIT TEAM ASSESS COMPLIANCE WITH ALL OF**  
3       **THE CHECKLIST ITEMS FOR EACH OF THESE COLLOCATIONS?**

4   A.     Yes, it did.

5

6   **Q.     HOW MANY COLLOCATIONS DOES NUVOX HAVE IN INDIANA?**

7   A.     NuVox has 12 collocations in Indiana.

8

9   **Q.     DID QSI RELY ON ANY ADDITIONAL SOURCES FOR INDICATIONS**  
10   **OF APPLICABLE INDUSTRY STANDARDS?**

11   A.     Yes. We also utilized *Telcordia Notes on the Network*, Issue 4<sup>2</sup> (*Notes*) as a  
12       reference source. It is a widely recognized telecommunications primer presenting  
13       an encyclopedia-style overview of numerous technologies and topics regarding  
14       today's Local Exchange Carrier (LEC) networks. *Notes* deals with complex,  
15       highly technical subjects, but presents the information in a way that makes it  
16       accessible and understandable to a variety of readers. *Notes* has been written with  
17       two audiences in mind; the technical and non-technical reader. While it provides  
18       sufficient detail to serve as a reference document for the technical reader, it also  
19       distills the technical concepts in such a way that they are understandable to the  
20       non-technical audience.

21

---

<sup>2</sup> Telecordia Notes on the Networks, Telcordia Technologies Special Report SR-2275, Issue 4, October, 2000, p. 1-1.

1    **Q.    DOES NOTES ADDRESS WHAT THE APPLICABLE INDUSTRY**  
2           **STANDARDS ARE REGARDING HOW POWER SHOULD BE**  
3           **DISTRIBUTED AND MANAGED WITHIN A CENTRAL OFFICE?**

4    **A.**    Yes, it does. It reflects that power distribution systems contain feeders from the  
5           battery discharge circuit to the first or primary over current<sup>3</sup> and distribution  
6           system. From the primary distribution system, many systems rely on two feeders  
7           to prevent loss of power for call processing, and are independently over current  
8           protected. If the protection device should fail or a fault should occur on one of  
9           the feeders, the alternate feeder provides power to the load. Each over current  
10          protection device and feeder are engineered for the electrical current and voltage  
11          drop required to power all the equipment from one feeder. This arrangement is  
12          called an A/B distribution system.<sup>4</sup>

13  
14    **III.    OVERVIEW OF CENTRAL OFFICE POWER SYSTEMS AND**  
15           **THE NEED FOR REDUNDANCY**  
16

17    **Q.    PLEASE PROVIDE AN OVERVIEW OF HOW CENTRAL OFFICE**  
18           **POWER SYSTEMS FUNCTION.**

19    **A.**    A telecommunications central office environment requires two primary functions  
20           from the power system. The power system converts commercial AC power to DC  
21           voltages required by central office environment electronics. Second, the power

---

<sup>3</sup> The phrase "over current" refers to the fuses that protect the equipment.

<sup>4</sup> *Notes.*, at p. 9-21



1 system generates emergency power when commercial power is interrupted or  
2 fails. Typically, primary AC power sources are the public electricity utility  
3 company. Emergency reserve power or energy systems are secondary lead acid  
4 storage batteries and backup generator systems consisting of a gasoline or diesel  
5 engine generating source and a conversion system (generator, energy to AC  
6 current). Virtually all active circuit components in the central office are  
7 supported by these power systems. As a reliability feature, the secondary power  
8 system (batteries and generator system) support the primary commercial power.  
9 This process is typically for redundancy of source and underlies the reliability of  
10 service demanded by telecommunications customers.

11  
12 **Q. YOU HAVE NOTED THE “REDUNDANCY OF SOURCE” THAT IS**  
13 **PROVIDED VIA THE SECONDARY POWER SYSTEM. DOES THAT**  
14 **DESCRIBE THE FULL EXTENT OF THE REDUNDANT FEATURES OF**  
15 **A CENTRAL OFFICE POWER SYSTEM?**

16 **A.** No, it does not. Redundancy does not end at the source of the power.  
17 Telecommunications power distribution systems contain feeders from the battery  
18 discharge circuit to the primary over current device and the power distribution  
19 system. From the primary distribution system, many systems rely on two feeders  
20 to prevent loss of power for call processing, and are independently over current  
21 protected. If the protection device should fail or a fault should occur on one of  
22 the feeders, the alternate feeder provides power to the load. Each over current

1 protection device and feeder are engineered for the electrical current and voltage  
2 drop required to power all the equipment from one feeder. This arrangement is  
3 called an A/B distribution system.

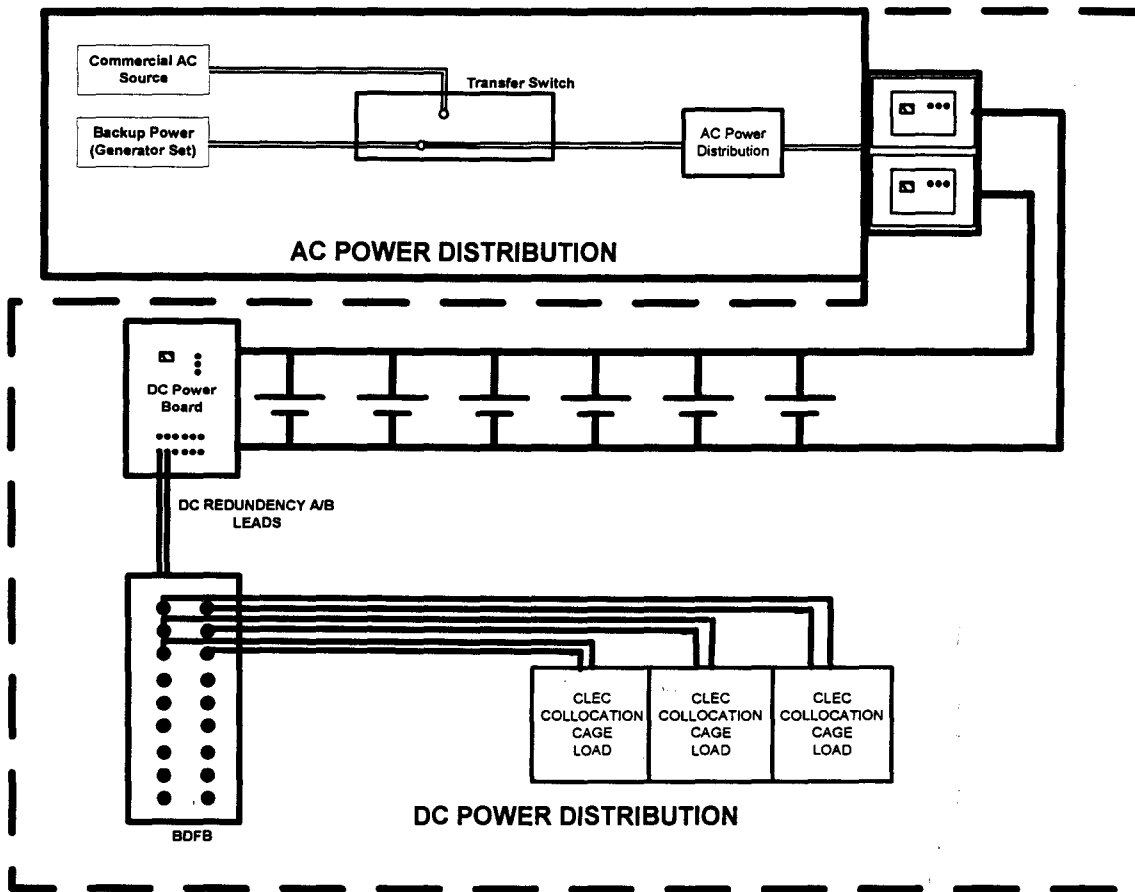
4  
5 **Q. WHY DO CENTRAL OFFICE POWER SYSTEMS EXHIBIT THIS**  
6 **LEVEL OF REDUNDANCY?**

7 A. Redundancy is a basic concept in much of the telecommunications network. By  
8 design, equipment and systems that are commonly found in ILEC central offices  
9 are essential to providing service to customers, i.e. switches, processors, optical  
10 feeder networks, etc. The end purpose in redundancy is public safety. A basic  
11 tenet in the industry is that during times of crisis (floods, earthquake, storms etc.)  
12 the telephone network will have the best opportunity to provide uninterrupted  
13 service as is practically possible. Redundancy of power source and of the  
14 facilities that distribute the power to essential equipment is a key element of that  
15 concept.

16  
17 **Q. CAN YOU PROVIDE AN ILLUSTRATION OF A REDUNDANT**  
18 **CENTRAL OFFICE POWER SYSTEM?**

19 A. Yes. Figure 1, below, illustrates the type of distribution equipment found  
20 between the telecommunications power system and the telecommunications load  
21 or equipment. The figure is a simplified schematic of a distribution system  
22 divided into modules.

FIGURE 1



**IV. QSI'S COLLOCATION AUDIT: FINDINGS**

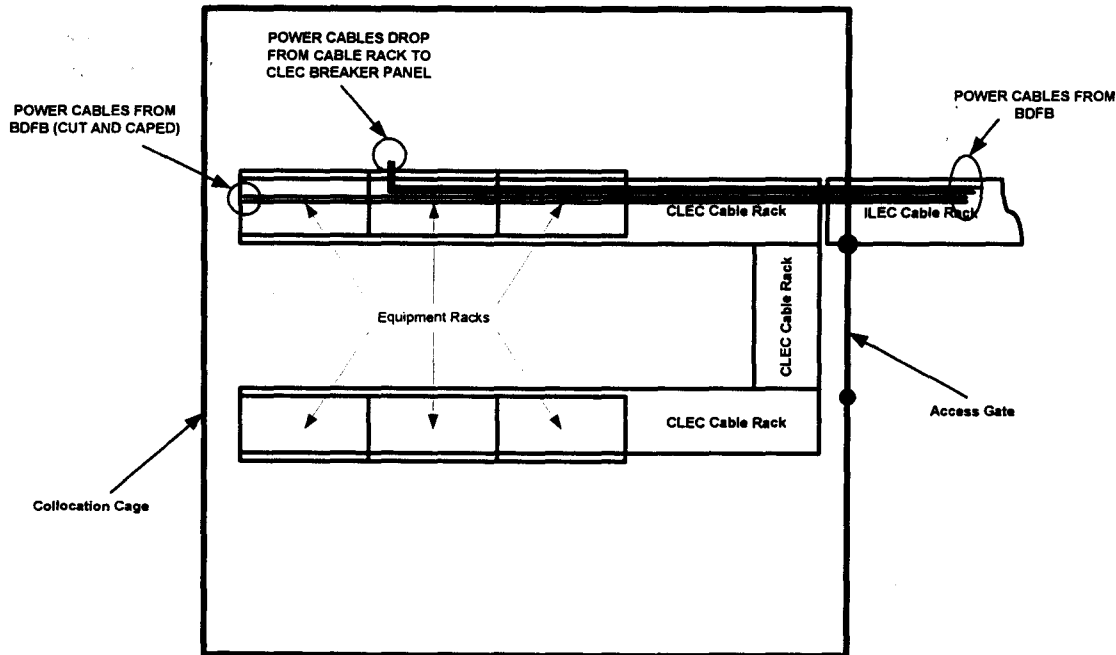
**Q. WHAT DID THE QSI AUDIT DISCOVER REGARDING THE DESIGN OF NUVOX'S COLLOCATIONS?**

**A.** The audit found that all 7 of the NuVox collocation sites that were inspected (including the 3 Indiana sites) are designed using a standard equipment application, and a standard power application and physical configuration. NuVox utilizes a standard power distribution design, which takes advantage of the

1 redundancy feature of the A/B distribution leads. There is no indication that  
2 NuVox intends to utilize power capacity in any manner other than that stated for  
3 redundancy. This means that the power distribution is fused, cabled and wired  
4 with service reliability as a primary objective. The power distribution network is  
5 not configured in such a manner that the A/B leads can practically be split to  
6 provide power to multiple loads such that the power total would exceed the  
7 breaker capacity of a single A or B lead. A graphic representation of the typical  
8 NuVox collocation footprint is depicted in FIGURE 2 below.

FIGURE 2

NUVOX COLLOCATION SITE FOOT PRINT



1    **Q.    ARE THERE ANY MATERIAL CONFIGURATION DIFFERENCES**  
2    **AMONG THE NUVOX COLLOCATIONS?**

3    A.    No. There are only minor variations in the NuVox engineered configuration that  
4    accommodate differences in expected customer volumes. An inventory of the  
5    type and quantity of equipment contained in 3 Indiana collocations that were  
6    audited is attached to this testimony as Exhibits SLM-2, SLM-3 and SLM-4.

7  
8    **Q.    DO ALL OF THE POWER DISTRIBUTION CABLES THAT RUN FROM**  
9    **THE SBC CENTRAL OFFICE POWER SYSTEMS TO NUVOX'S**  
10   **COLLOCATIONS ACTUALLY SUPPLY POWER?**

11   A.    No. There are a number of power distribution cables running to each collocation  
12   that are cut and capped in the overhead cable rack. They are not connected to any  
13   equipment and they are not supplying any power. These are cables that  
14   Mr. Coker describes as “non-fused” power feeds.

15  
16   **Q.    IN HIS TESTIMONY, MR. COKER HAS NOTED THAT NUVOX'S**  
17   **EQUIPMENT IN ITS INDIANA COLLOCATIONS ONLY DRAWS IN**  
18   **THE RANGE OF 10-25 AMPS OF POWER. BASED ON YOUR AUDIT, IS**  
19   **THAT RANGE GENERALLY CONSISTENT WITH THE TYPES AND**  
20   **QUANTITIES OF EQUIPMENT YOU FOUND IN THE NUVOX**  
21   **COLLOCATIONS?**

22   A.    Yes, it is.

1

2   **Q.    ARE YOU AWARE THAT SBC IS BILLING NUVOX FOR 600 AMPS OF**  
3       **POWER EACH MONTH FOR EACH OF ITS INDIANA**  
4       **COLLOCATIONS?**

5   **A.    Yes, that is my understanding.**

6

7   **Q.    BASED ON QSI'S AUDIT AND YOUR FINDINGS REGARDING THE**  
8       **DESIGN CONFIGURATION OF THE COLLOCATIONS AND THE**  
9       **TYPES AND QUANTITIES OF EQUIPMENT CONTAINED IN THE**  
10      **COLLOCATIONS, HAVE YOU FORMED AN OPINION AS TO**  
11      **WHETHER AS A PRACTICAL MATTER NUVOX CAN UTILIZE**  
12      **ANYTHING APPROACHING 600 AMPS OF POWER?**

13   **A.    Yes, I have. In my opinion 600 amps of power is extremely excessive relative to**  
14       **the level of power that NuVox's equipment can use today. As I noted previously,**  
15       **QSI's review of the collocations is consistent with NuVox's finding that its**  
16       **equipment draws only 10 to 25 amps per collocation.**

17

18   **Q.    IN YOUR OPINION, IS IT LIKELY THAT NUVOX WILL BE ABLE TO**  
19       **UTILIZE ANYTHING APPROACHING 600 AMPS OF POWER AT ANY**  
20       **TIME IN THE FORSEEABLE FUTURE?**

21   **A.    No, I see no likelihood of NuVox having a need for anything approaching 600**  
22       **amps in its collocations.**

1

2     **V.   CONCLUSION AND SUMMARY OF FINDINGS**

3     **Q.   PLEASE SUMMARIZE YOUR TESTIMONY.**

4     A.   Yes. QSI has conducted a site audit of a representative sample of NuVox  
5         collocations in SBC central offices in Ohio and Indiana. In performing the site  
6         audits, QSI examined the physical construction of the collocation sites regarding  
7         the application and distribution of power within the facilities. The collocations  
8         were inspected for compliance across a comprehensive checklist of items drawn  
9         from industry standard engineering guidelines. The audit found each of the  
10        NuVox collocations that were inspected to be in compliance with all checklist  
11        items. Each collocation is designed using a standard equipment application and  
12        exhibits a standard power application and physical configuration that is consistent  
13        with the redundancy of the A/B power distribution leads. The inspection  
14        confirmed that a number of the power distribution cables running to each  
15        collocation are cut and capped and do not supply any power to NuVox's  
16        equipment. The inspection also confirmed that NuVox's collocations do not  
17        require anything approaching the 600 amps of power that SBC bills NuVox for  
18        each month, and that there is no likelihood that NuVox will require anywhere near  
19        600 amps of power in the foreseeable future.

20

21    **Q.   Does this conclude your testimony?**

22    A.   Yes it does.